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## Establishing the Internal and External Contexts

Establishing context includes understanding why the organization is engaged in ERM, the need and scope of the ERM program, and how the organization defines ERM. Defining strategy is often the first step for the organization because all risk management is associated with critical risks to strategy.

### 1.1 MANAGING RISKS TO ENABLE STRATEGY

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#### 1.1.1 The Origin of Modern Risk Management

Spectacular events occurred during the final decades of the twentieth century that fed the “fear of the millennium”. The first decade of the twenty-first century also fed fears, including alternating natural events or technological catastrophes, increasing terrorism, social upheavals like the “Arab Spring” that began in 2011, the Asian tsunami in 2004, and the typhoon in Japan in 2013. Traditional media, expanded by social media, did not miss an opportunity to blame the ravages of globalization, the brittleness of the world socio-economic system or to question its long-term sustainability. It is clear that the relationships between the different actors in the system are becoming more and more complex while their interdependencies are increasing. This is precisely the state of the system that might be explained by the tenets of chaos theory.

The last millennium came to a close with the resource-intensive campaign to prevent the anticipated damages of Y2K, the bug that was supposed to crash all computer activity on December 31, 1999. Apparently, to the general public at least, nothing serious occurred at midnight and some concluded, a little too quickly, that the threat was only a fabrication of IT consultants to ensure their business development for the previous three years. For risk management professionals Y2K was a vivid illustration of the fundamental paradox of the trade: the catastrophe was avoided thanks to heavy investments, and the success of the risk treatment avoided IT Armageddon! In France, it was ironic, however, that the Y2K crisis teams were activated when two exceptional storms, Martin and Luther, with winds close to 150 miles per hour hit the country right in the middle of the Christmas season in 1999. This is the main reason why the railway system, SNCF, and the electricity utility, EDF, were able to react promptly and save the day, and enhance their reputation.

The third millennium started with the fireworks of the September 11 terrorists attacks and ten days later by the AZF<sup>1</sup> complex explosion in Toulouse; a series of financial catastrophes, initiated as early as August 2001 with the Enron collapse; and natural events such as the tsunami in Southeast Asia at Christmas 2004, and more recently in the spring and summer of 2011 the tsunami in Japan and catastrophic floods in several countries. These events and others revealed dependencies, sometimes to unaware actors who suffered massive contingent business interruptions. The rise of aberrant situations brings about ruptures that leaders in the private as well as the public sectors must learn to address aggressively in order to avoid their degenerating into full-blown crises.

In such a context, it is all too clear that the traditional and static approach to managing risk, mainly organized around the purchase of insurance cover to protect physical assets, has become totally obsolete. We are well overdue in making room for a dynamic and global vision, integrating recently identified “black swan” type risks like the interconnected effects of global supply chain and terrorism. It is essential to encompass the world of threats and opportunities, not only from an inside out view formed at the board level, but enlightened by an outside in view reflecting the expectations and fears of all main stakeholders.

### 1.1.2 Strategic Risk Management?

The recently developed concept of strategic risk management can add value to the risk management process, provided it is interpreted as including the risk management disciplines of influencing, development and implementation of organization strategy, the ultimate responsibility for which rests with the board and the C-suite. The generic term used here, “organization”, refers to all types of enterprises, private, for-profit enterprises as well as NGOs, healthcare providers, local authorities, etc. But nations themselves have to organize their internal (police and judicial system) as well as external (national defense) security in an ever more complex and fluid environment, not to speak of their reputation in the light of the fight against corruption and money laundering. Political leaders should therefore regularly review their approach and engage in an iterative risk assessment and management approach.

However, both academics and practitioners of risk management are aware that managing uncertainties is contained within a comprehensive package of concepts, principles, framework and process, well summarized in the ISO 31000:2009 standard. Risk management implementation in any given field requires a specific understanding of internal and external contexts, all the more complex when the system is open. No organization functions effectively today as an autocratic entity but, nevertheless, hospitals (in national healthcare countries), local authorities and nations have more authority to consider, and possibly a longer time frame to take into account, in their decision making processes in other than crisis situations.

All that said, the emergence of the term strategic risk management as a “new discipline” is probably unnecessary. This new term attempts to emphasize risks to strategy, a more than appropriate emphasis. However, this emphasis is one that should not have been necessary, had risk managers risen to the challenges posed by the original expansion of the discipline, i.e. enterprise risk management (ERM). ERM was always intended to capture the strategic emphasis now highlighted by SRM, but many failed attempts at ERM missed this opportunity.

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<sup>1</sup> Explosion of an ammonium nitrate stock in a plant belonging to the Grande Paroisse Company (Total Group).

There are many reasons why ERM has failed in many venues, but that aside, we didn't need to add another moniker to enable what has always been assumed as central to ERM strategy. However, we can take this opportunity to leverage the new labeling as a de facto rebranding or risk management/enterprise risk management, often useful to initiatives that have failed to get the traction necessary for long-term acceptance and success.

### 1.1.3 Ethics, Sustainable Development, and Governance (ESG)

It is only in the last three decades, after the fall of the former USSR destroyed the communist alternative to the "free" economy model, that courses in ethics started to appear in the curriculum of MBA programs in leading universities. Business ethics became part of public speeches of leaders, both political and industrial, and took different forms: "sustainable development" when it comes to environment issues; "governance" or "compliance" in connection with societal issues and transparency.

But are these leaders' intentions followed by actions? Ethics cannot remain a nice concept only, it must become an integral part of the management toolkit; in commercial entities of course, but even more so in public entities where there is growing public demand for integrity and transparency. There is ethics only in ethical *behavior*; this is why a better phrase would be "ethics in action".

Obviously, if issues were black and white, most human beings would have a clear choice that would be obvious. But the set of values underlying an ethical behavior is in constant evolution, it changes through time and space. This notion of an active and progressive ethic implies that the decision makers must be ready at all times to question organizational objectives, and that managers and supervisors in the organization be willing to question themselves continuously in light of the set of fundamental values at issue.

In any decision process, ethics in action opposes the "could" and the "should". It questions the basic definition and meaning at the heart of the approach of many consultants specializing in human factors. These questions are dealt with in the next section.

### 1.1.4 Where Are We Heading? Why and For Whom? How?

Ethics in action also questions the validity of an old proverb: *NO, the end DOES NOT ALWAYS justify the means!* And it is becoming increasingly clear that the end (financial optimization) is not enough to justify any means (the negation of the universal human condition, the depletion of the planet's resources and contempt for the primitive rules and/or the fundamentals of collective life). Even at a time when most European governments are leaning to the right of the political spectrum (while the US leans to the political left while being troubled by the right e.g., The Tea Party), people are reacting more and more vociferously to the publication of record profits by leading economic entities who, at the same time, outsource jobs to "emerging" economies. Massive layoffs in profitable shops to enable hiring in *even more* profitable shops are viewed as morally unacceptable and the "license to operate" might well be revoked by public outcry or boycott before governments intervene. The challenge against greed and for social justice is especially vocal in European Union countries.

The fall of the Berlin Wall, signaling the end of the centralized economic alternative, has put free market economics at the forefront and since 1989 this free market has flourished in a world that seems more and more borderless. However, many do not understand the economic

“reality”. Wealth is mostly intangible, some would say even fictitious, and evermore excessive compared to real assets, not to speak of the average income level of the middle classes. This self-perpetuating system has grown beyond the grasp of human minds and has inflated bubbles in the stock exchanges of the world. Even after the series of financial collapses since July 2007 and the first sign of the imminent crisis with the “subprime mortgage meltdown”, many economic players have resumed “business as usual” with collateral casualties: the working populations.

All this happened even as, before the start of the nagging economic crisis we are still going through, some states had taken measures to control some negative effects of globalization. The European Union produced its eighth directive on governance and France introduced the precautionary principle into its constitution. Clearly, survival under any circumstances requires a global and integrated approach to the management of the uncertainties. Felix Kloman championed the expression “holistic”. Francophone academics prefer another Greek word, “Cindynics”, or the “science of danger” based on a body of principles developed by Georges-Yves Kervern on the foundation of the systemic approach proposed by the Nobel laureate Herbert A. Simon.

What has come to light in the last ten years is that risk management is no longer the exclusive domain of a risk management professional at the headquarters of the organization. On the contrary, effective risk management requires all key stakeholders to be appropriately engaged in the process, within and outside the organization. This engagement is always important, but even more crucial for open systems, public space, and territories where all citizens are to be active participants. Therefore, the first challenge to meet is the risk illiteracy of the majority of stakeholders. This is nothing new, for in the eighteenth century, Benjamin Franklin envisioned a future for democracy only if the citizens were educated and learned to read, write and “understand risks”. At a recent conference,<sup>2</sup> Professor Gerd Gigerenzer of the Kant Institute in Berlin denounced risk illiteracy as the root of broken communication and consultation with stakeholders who cannot understand the threat and opportunity challenges of our technological world. In reality, the issue at stake is an understanding of the benefits and limitations of statistics to avoid being manipulated by sorcerer apprentices (as Warren Buffet said, “beware of geeks bearing formulas”) that arbitrage risks, threats and opportunities and which can lead corporate and other citizens to adopt solutions to their own selfish advantage, rather than the common good.

For example, commenting on the recent result of the election in France, a leader of a nationalist party mentioned the “tenfold result in his party’s members of parliament”. They went from zero to three, out of 572! From zero any increase is “infinite in percentage”. In the world of finance, fat tails and mathematical models have deceived decision makers as to the level of risks at stake with derivatives, and induced the crisis of the second decade of the twenty-first century we continue to struggle with.

Ethics, sustainability and governance must rely on transparency and symmetry of information if all stakeholders will be efficiently involved in and make contributions to the decision-making processes. Therefore, understanding statistical concepts and limitations should be at the heart of any civic education, together with reading, writing and mathematics. For corporate and other citizens to make enlightened choices and decisions we must ask whether people understand how to question the validity of the figures that are put forward to them.

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<sup>2</sup> Forum de l’IRM – Institute of Risk Management – Liverpool March 2011.

### 1.1.5 Fundamentals in Risk Management

ERM – Enterprise-wide Risk Management – relies on the fundamental assumption that all actors in the political, economic and social environments understand the risks generated within the perimeter of their responsibility, or the manifestation of a risk to the organization that first appears under their watch. Managing risk is at the heart of management’s mission, but it is also a fundamental tool that can significantly influence and enable the achievement of optimal performance. It is therefore essential that each professional be equipped with an efficient and effective set of tools to manage risk. Since every organization has a risk culture, whether by design or default, it is essential that a more intentional effort be put forward to design an effective risk culture and integrate it into the desired corporate culture. In so doing the ideal result will be to enable every manager to be both a “risk owner” and risk manager. This is why the key to “effective risk management” is to integrate risk management competencies into the existing organizational culture, thereby improving the chances that the organization’s mission will be accomplished.

#### *Risk Management and Corporate Objectives*

Risk management is one of the fundamental methods for managing organizations with the goal of optimizing performance while coping with uncertainties or risks; both threats and opportunities. All organizations are driven to achieve predefined objectives: profits, growth, public service, political goals, re-election, etc. But whatever the long-term goal or mission, there is the inescapable reality: *Surviving any event or change of situation that may occur may result in losses, the threats... but there can also be situations where one can take advantage of those adverse events to open new possibilities and opportunities.*

The specific mission of the risk management professional, as part of the C-suite, is to propose a framework and a process for risk management and ensure that all managers (and risk owners) are equipped to act and optimize the impact of potential internal or external rupture points on the life of the enterprise, i.e. be accountable for curbing threats and enhancing opportunities: *“Transmute disruptive ruptures into creative ruptures”*.<sup>3</sup>

As a process, risk management supposes to conduct an in depth analysis of the internal and external contexts of the organization to help refine sustainable objectives. A proper inclusion of uncertainties and adhesion to ethical values requires that risk management be integrated at all levels in the development of the strategy, to be in a position to systematically review and assess the scenarios on which it is based.

### 1.1.6 Risk Management Process

Once the corporate objectives are defined, the following three steps help increase the assurance of reaching an entity’s strategic goals and by extension, its mission.

**Step 1 – Risk Assessment:** beginning with an inventory of all of the organization’s exposures, i.e. all that could impact its fundamental objectives, define a risk profile, establish a risk matrix and develop a risk register with the following elements:

**Identification:** the resources “at risk” and the uncertain events or change of circumstances that might impact their level (substantially);

<sup>3</sup> Bertrand Robert – Argillos.

**Analysis:** the impact and likelihood in light of the objectives and without any treatments (controls) in place (*gross or original risk*);

**Evaluation:** the impact and likelihood taking into account the existing treatment mechanisms (*residual risk*).

**Step 2 – Risk Treatment:** consists of all measures to mitigate risks.

As far as **risk reduction** is concerned, the whole range of mechanisms should be evaluated, spreading far beyond the traditional perimeter of insurance risk transfer, including risk avoidance. The array of possible actions covers all the major functions in the organization: marketing, production, procurement, legal, etc. The goal is to implement all instruments that will allow the reduction of impact and likelihood of threats to an acceptable level (risk tolerance). It is important to be clear that these threats and their treatments are related to the essential mission of management: continuity and optimization of operations.

As far as **risk financing** is concerned, the whole range of mechanisms should be evaluated to reinforce the finance strategy of the organization with an “exceptional financial resource plan”, at the headquarters level.

The following process could be followed, for reduction of risk at the operational level, for financing at the C-suite level, and in all cases facilitated by the risk-management professional:

**Identify** all the instruments efficient to mitigate these exposures;

**Outline and get concurrence from** the person responsible and accountable for the exposures (the risk owners) the mitigation tactics best suited to achieve objectives (*at the operational level for risk reduction; executive level for risk financing*);

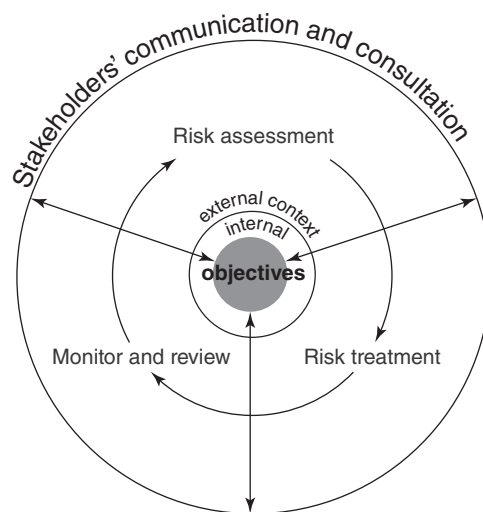
**Implement** the agreed upon tactics by the person responsible and accountable for the management of these exposures (*risk owner*).

**Step 3 – Monitor and Review:** consists of the control of results to obtain assurance of proper implementation of the strategy and tactics as well as its efficiency and relevance. In this step the organization monitors and implicitly addresses the interests of the executives and the board in its desire for risk management program effectiveness.

Internal audit is the “natural” owner of risk management audit, but it works in cooperation with the risk management professional and audits the management of risk at the operational level. There is a growing trend for auditors to go beyond their natural role and absorb all the activities of risk management, including the mission of facilitator and consultant for the decision makers. As the number of seats at the table in the executive committee is limited, joining the universal corporate functions (audit, internal controls, quality, and risk management) may prove necessary but it is then essential that the officer in charge clearly defines the missions of each of the collaborators and their specific competencies.

To be specific, whereas rigor is the key attribute of an internal auditor, as far risk management is concerned, its implementation requires from the risk management professional a good dose of imagination at all stages of its development, especially to uncover the emerging risks.

A risk manager must always push for the mitigation of tomorrow’s threats and opportunities, rather than the treatment of yesterday’s catastrophic event! This is the price to pay to ensure continuity under all circumstances at the operational level (**risk reduction toolkit**) while ensuring sufficient cash and return at the level of the overall organizational financial strategy (**risk financing toolkit**).



**Figure 1.1** The risk management process.

Finally the risk management process is in essence iterative and does not represent a vicious circle but on the contrary a virtuous circle, a permanently improving Deming wheel:<sup>4</sup> every turn aims at improving and refining the approach and updating the risk register by deleting obsolete exposures and introducing emerging ones in view of the evolution of the internal and external context of the organization, including its own mission, goals and objectives. The circle representing the ISO 31000:2009 risk management process (see Figure 1.1 above) illustrates the intimate interaction between strategy and risk management as well as the need to incorporate the expectations and needs of all major stakeholders in the process.

### 1.1.7 From Risk Management to Good Governance

As evidenced by all that is stated above, buying insurance is clearly now only a portion of a risk management strategy. It is a global and integrated management of risks that all organizations are expected to develop and implement, be it for compliance, or for governance issues. However, what has been learned through several centuries, financing and managing “insurable risks” should not be forgotten or discarded. In many organizations, the risk management learning process is initiated by request from insurance underwriters with the assistance of their expert teams visiting the insured locations. It is important to be candid and transparent with the insurer. Getting the best conditions from an insurer requires equipping it with precise and detailed information, reflecting a rigorous overall management and control system. Currently, this process is a necessary step towards timely and relevant information for all stakeholders in the communication and consultation processes.

The pressure from public opinion relayed in social media and the expectations of consumers and citizens does not leave any room for elected officials or executives to wiggle out of messy situations. A key mission of the public official is to develop a risk management policy that goes

<sup>4</sup> From W. Edwards Deming: Plan, Do, Check, Act.

beyond the protection of physical assets and liabilities to ensure the safety, security, and secure procurement for, all stakeholders, private and public, that are impacted by their decisions.

The rising importance of risk management during the first decade of the twenty-first century is translated at the organizational level by the evolution from a technical function embodied by a limited group of risk management professionals, to the extension of all managers' missions to effectively manage the risks they generate or identify. It is made possible only by the development of a body of concepts, methods and tools that have been created jointly by academics and practitioners. This risk management culture, defined by risk management competencies, must extend not only to all in charge, at the economic, political and social level, but also to all those who have a stake in the organization's success.

The widening of the scope and mission of risk management can only be successful if the risk management professional is better recognized inside and outside of the organization. The norm should be that a competent well-compensated risk manager should report to the CEO, board, most senior official or mayor (if a public entity). For this enlarged new risk management scope and mission to be successfully implemented within any organization, the risk management professional will need to be recognized by their leadership. This will require that the risk management professional gains a strategic vision and strong competencies.

The risk management profession has as its challenge the need to increase the level of competency that risk management professionals in organizations will require to manage twenty-first century risks. Whatever the title, CRO<sup>5</sup> or other, risk management professionals must earn the trust and confidence of leadership, the recognition of their peers, the support of the population at large and the organization's partners/stakeholders through the creation and management of sustainable risk-management policies. It will require patience and perseverance through advances and setbacks. But it will require from their leaders a continuous political will to keep the long-term course of the organization in focus.

Once all in charge have made the necessary efforts to enable a sound risk management policy, the ultimate result will be a more universal process that protects the security and safety of all consumers/voters whether for the next election, for social license, or the products they purchase. People will recognize that it is sound risk management, far beyond any compliance, that ensures **"Good Governance"** for the benefit of all.

This is not a new idea. In a position paper published in the daily *Le Monde* in Paris on May 27, 1981,<sup>6</sup> two weeks after the election in France of a socialist president, Jacques Ellul, sociologist, anarchist and theologian, took a position against the generally politically correct stance of the time when he wrote: *"Nothing essential in the fundamental trends of our society are going to be modified"* to further stress that to support the economic growth would be: *"complete foolishness"* as *"the quality of life is in utter contradiction with the growth of industrial production and the industrialization of agriculture"*.

A sound risk-management strategy, rigorously implemented at all levels of the organization is the perfect tool to enable effective communication and consultation with all stakeholders. It is the tool to demonstrate a real commitment to sustainability and the expectations and need of the populations in a proactive and structured approach to work better and more efficiently for the common good.

Hence, the assurance of resilience and the optimization of opportunity, the ultimate goals of risk management, are the keys to success in the economic, social and political arenas as it is accomplished by executing the tenets below.

<sup>5</sup> CRO – Chief Risk Officer.

<sup>6</sup> The Brundtland report on the environment of the United Nations was published in 1987.

*It is essential to get ahead of, and gain some understanding of, emerging risks:* While great debate continues about which “unknown” risks require an organization’s attention, and even what a “black swan” event really represents, it is clear that senior leaders and boards (especially in the latter’s oversight role) increasingly expect risk stakeholders to gather intelligence on far-off threats that could be company-ending events. This longer term, low probability view is not unlike how planners have long looked at the competitive landscape.

*Assessing and aggregating all risk is essential:* Individual exposure assessment is not enough anymore as it does not take into account correlations and more generally interactions within the set of exposures of a given organization, this is why it is necessary to implement a “portfolio approach” to the aggregation of risks.

*Taking into account extreme, low probability events is required to inform a comprehensive strategy:* A risk universe does not always follow the normal probability distribution and it is essential to take into account unexpectedly large deviation from the expected, i.e. fat tails or black swans that could produce catastrophic impacts.

*Whereas quantifying tools are important, qualitative tools and sound judgment should not be neglected:* Even if the kit of quantifying tools is quite comprehensive, it is imperative to keep in mind the limitations of mathematical models. They reflect past wisdom or experience more than they predict future behaviors as they rely on past data and implicit, as well as explicit, hypotheses that condition and limit their validity.

*Risk appetite must be defined and understood:* ERM is essentially strategic in nature; it must be able to balance costs and benefits with the acceptable level of risk necessary to achieve the organizational goals and objectives. It is the board’s responsibility to define the risk appetite and risk tolerance level at which the organization can safely and efficiently operate but it must also provide key risk indicators that operational managers can monitor to remain within risk thresholds and be accountable for their results.

*Risk culture must be rooted in the organization:* While the board and executives must have the “reasonable assurance” that all risks the organization is exposed to are diagnosed and mitigated according to their guidance, it is totally unreasonable to think that senior executives will monitor all exposures included in the risk register. Therefore executives and the board must rely on upper, middle and lower management to manage operational and tactical risks so that only exposures with potential impacts on the strategy are brought to their attention.

In the United Kingdom, local authorities have been asked to develop a Long Term Sustainability Strategic Planning or SPP that aims at integrating in a holistic thinking process, or brainstorming, the economic, environmental and social issues in seven risk categories: environment and natural resources; finance and marketing; social license to operate; political, legal and regulations; services and production; and reputation. In the US the utility service of San Francisco (<http://www.sfwater.org/>) has established a team dedicated to ensure that all initiatives are coordinated and offers two recommendations to any entity that would follow the same route:

- Identify all stakeholders and their expectations and needs to take them into account during all decision-making processes to ensure real sustainability;
- Map on a matrix all exposures that could materially threaten the missions, goals and objectives at the heart of the organization in order to improve strategic action.

Global organizations are strongly linked to an open web of relationships with a number of stakeholders, some of whom they do not even recognize as such, and both corporate and societal resilience requires that all provide each other with the “*reasonable assurance*” that all threats are curbed and opportunities enhanced so that the world as a whole is a more secure place for the current as well as future generations. In the “*Orange Book*”,<sup>7</sup> the reference on risk management for British local authorities, it is stated that obtaining the “reasonable assurance” of sound risk management is an integral part of any public–private partnership. As such, this alignment between business and society is best exemplified through sustainability strategies that are by definition, joint efforts at resilience from threats and optimization of opportunities. This dual focus is the essence of what enterprise risk management (ERM) calls upon practitioners to adopt. And while we must always ensure that the downside is addressed as the management priority, the search for opportunities to exploit risk for gain enables risk managers to improve the chances of becoming more influential, respected and significant in the scheme of organizations and the strategies they employ to deliver their missions. The evidence for this possibility will be easy to spot as risk leaders get elevated in the hierarchy and are asked to contribute their opinions and expertise to not just the tactical but the strategic initiatives that most drive long-term success.

Julia Graham,<sup>8</sup> 2013–2014 President of FERMA<sup>9</sup> offers what we may view as an interim conclusion, (echoing the “Orange Book”) that risk managers are the scouts of the future and that

“In addition to all the current issues specific to risk management, the risk management community must stay on the alert to all the changes the world is going through at all times, and on the watch to anticipate and remain open minded to bring appropriate answers that the situations may dictate.”

## 1.2 STRATEGY, CONSTRAINT, RISK MANAGEMENT AND THE VALUE CHAIN

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### 1.2.1 Strategy and Constraint

Michael Porter contributed to the development of ERM by defining strategy. He said that, “A strategy is an internally consistent configuration of activities that distinguishes a firm from its rivals” (Porter, 1985, 1998, pp. 335, Kindle edition). Because strategy is that which produces a unique mix of values that customers will pay for, strategy is different for each firm. In addition, strategy is constraint, the reduction of degrees of freedom – we will do certain things, not others. In the end, strategy is what drives the organization and it is the risks to that strategy that ERM manages. Strategy narrows the scope of the business but at the same time creates vulnerabilities which are the risks to that unique set of values that customers will pay for.

<sup>7</sup> “Orange Book – Management of Risk – Principles & Concepts” – [www.hm-treasury.gov.uk/d/orange\\_book.pdf](http://www.hm-treasury.gov.uk/d/orange_book.pdf).

<sup>8</sup> During her speech during AIRMIC 2012 Annual Conference in Liverpool June 1st.

<sup>9</sup> FERMA is the Federation of European Risk Management Associations and now includes 27 National Associations of risk managers, beyond the borders of the European Union (including Russia and Turkey).

Traditional risk management only looked at operational risks associated with the unique set of values customers pay for, ERM considers all critical risks.

Constraint eliminates or mitigates certain risks because the organization has committed to not doing the things that are not part of the strategy. At the same time constraints must be maintained because they are vulnerable to risks that can damage or eliminate the constraint. Therefore strategic risk management is all about maintaining the constraints that are part of the strategy.

The first prequel in risk management is to identify and define the right strategy for the organization. The second prequel in risk management is to identify the constraints associated with that strategy. When the constraints are identified the risk management process of identifying, analyzing, treating, and monitoring risks to strategic constraints can begin. It does not matter whether the organization subscribes to ISO 31000 or COSO or some other enterprise risk management framework; the need to develop a cohesive, workable, carefully defined value-oriented strategy and associated constraints is always the first task before any form of risk management can be implemented.

### 1.2.2 The Value Chain

If strategy is all about producing value then this is the first step in the process of strategic identification: identify value. In 1985 Michael Porter introduced the concept of the value chain. The value chain begins by identifying the activities or services of the organization that provide value to its customers. But it goes beyond customers: all stakeholders do business with the organization because it provides value to each of them in some form or another. To define value then is to define the value that customers, vendors, employees and others receive from doing business or working with the organization.

While customer value is paramount, the value-adds to stakeholders are part of that equation. If the organization can identify the competencies and activities that provide value to all stakeholders it can derive a clearer picture from what assets the value is derived in the organization. Says Porter, "Competitive advantage grows fundamentally out of value a firm is able to create for its buyers that exceeds the cost of creating it" (Porter, 1985, 1998, pp. 507–510, Kindle Edition). The assets that produce activities or services that provide value represent the assets that need to be risk managed.

The first of these activities or services are those that the organization provides today that provide such value. It isn't the activities or services that must be risk managed it is the assets behind them: the people, equipment, intellectual capital and other assets which are the subject of risk management.

Second, the value chain organization recognizes the evolution of value. In addition to maintaining the value proposition that exists today, the value chain organization is continually assessing what customers and stakeholders want and need. The first of these are those newly discovered activities or services that stakeholders have a demonstrated need for and are within the existing capabilities of the organization to perform. Second are activities or services that stakeholders have a demonstrated need for, which are outside of the current capabilities of the organization but for which it is conceivable that the organization may want to consider developing.

While the existing strategy must be carefully risk managed, any change in strategy must be carefully risk assessed before the value proposition can be valued. As a result, it is imperative that the risk management function be part of any discussions on strategy that will affect

capabilities or assets that are valuable to customers. Engaging a risk assessment after the strategic change is announced poses two major problems. First, risk may be a very real cost that has not been assessed. The value proposition that is successful provides customer value but also an appropriate level of profit or cost offset for a not-for-profit entity. If risk or the cost to manage that risk adds more cost than is expected then the strategy may not be sustainable. Having risk management at the strategy analysis table will help mitigate such unsustainable strategic decisions. Second, strategic constraints are vulnerable the moment they are introduced. If the organization understands the risks associated with the strategic constraints before they are implemented then efforts to manage them can be incorporated into projects that will be required to facilitate the change in strategy.

Nor is the development of any strategy without risk itself. The first risk comes from identifying values that customers do not value and the converse, not identifying the values that customers do value. The second risk is underestimating the cost to produce those values. A third identifies the wrong customers for which the organization is equipped or could become equipped to provide value. There is, of course, the problem of not understanding the competition and their own ability to provide the same value proposition even at a lower cost.

Assume for a moment that the organization has analyzed and identified the key activities and services it provides that lead to value creation for its customers. This may, in fact, be a very small list. What the risk manager understands is that these outcomes are often part of a long list of activities, processes and supply chains, which if disrupted will corrupt the value proposition for the customer. However, if the organization has done its job to identify these value-creating activities and services then it is much more likely to be able to identify the critical risks associated with their generative process (value producing assets) than an organization that does not fully understand its value chain. This is not to say that it will be any easier to predict the fat tail events<sup>10</sup> or correlated risks that combine to produce worldwide changes in the marketplace. Risk management becomes the process of identifying risks associated with the assets that produce value to customers. In some respects the risk management task should become more efficient because instead of spending time analyzing all possible risks, the risk management function concentrates its efforts on the critical risks associated with value-creating activities and services.

The value chain focuses upon its stakeholders, and particularly its customers, to help drive the strategic direction of the organization. The strategy or constraint is not product- or service-focused but value-focused – the value to stakeholders. The value chain organization recognizes that risk is not being in tune with or being able to deliver the activities or services that customers and other stakeholders require today. The value chain organization builds a long-term strategy on identifying, building, and preserving those services and activities that customers and other stakeholders require. Value creation becomes the organization's long-term vision and strategy.

The strategy of value production is not decimated if the organization must retool, for example, from being a low-price to a high-quality service organization for this is an operational problem. If the change in strategy has been properly assessed, then the need for change is warranted and operations must conform. Certainly the retooling is expensive and introduces a whole new set of risks and challenges but the value of such a change is factored into the reorganization. The risk to strategy comes when the activities and services of the organization

<sup>10</sup> Think of a normal distribution – a bell curve. In a fat tail distribution the tails on either side of the bell never touch the x axis. This means that even at greater and greater standard deviations the risks of loss never quite disappear. In scenarios like floods, the thousand year flood probability of occurrence may actually be about the same as the hundred year flood probability.

do not align with the values of the customer and other stakeholders. The value chain organization can utilize short- and/or long-term goals and objectives as long as they align directly with customer values.

In many ways the value chain is a strategy of care, which means entering the world of the stakeholder and customer to find out what they need and what their values are. This is by no means an easy task. Customers can mislead on surveys and other methodologies used to identify values. Fads may disguise permanent long-term trends. The organization may not ask the right questions or have enough data to be able to make a good decision. Some decisions will be made in the presence of considerable uncertainty and as a result considerable anxiety, both internally and in the market and marketplace. Even if the narrowly defined critical services and activities that the organization provides can be identified, the risk associated with these may involve the entire supply chain. For example, if two-day delivery is what customers value most from the organization then maintaining that capability will require significant analysis of alternate supply routes, multiple delivery vendors, and even inventory build-up in anticipation of deleterious events or disasters.

The advantage to becoming a value chain organization is that it provides a cohesive strategic focus on customer and stakeholder values. It does not produce a product or service focus but a focus on developing a deep awareness of customer values and organizational competencies and process towards that end. The value chain organization is committed to maintaining its value proposition with its customers and stakeholders even as these values change over time. Strategy becomes care – caring about customer values and reciprocating with providing those values in a careful manner.

### 1.2.3 Risk Management and Strategy

Too many people still envision risk management as “something we do to cover our mistakes” or an attempt to offer a “risk-free work environment”. However such a goal could be achieved only if the site was surrounded by a moat and did not need any human to work within the premises. Clearly, this goal is not reasonable and the best we can do is to “manage the risks” using a robust risk-management process.

However, the process must be completely embedded in the management process of the organization at all levels: strategic, tactical and operational, so that all decisions are made with the right level of risk awareness. This is required if the organization is to reach the objectives it sets itself to achieve. This is why risk management must be involved in the setting of achievable objectives through the strategic planning process, as well as in the implementation of the strategy to optimize the performance of the organization whatever the circumstances may be.

The importance of setting attainable and sustainable goals should not be underestimated. For instance a prison administration in Australia had set the following objective to prison managers: “Total eradication of all illegal substances within the prison”. This proved to be unachievable as inmates’ imagination is without limits and even fresh fruits can be brewed into alcoholic beverages with sufficient ingenuity.

Enhancing opportunities while curbing threats is at the core of any risk management exercise. Thus, identifying the uncertainties of the internal and external context of an organization may even make it, as events unfold, able to achieve a better goal than originally anticipated.

To be efficient, however, the management of risk must not be seen as a separate activity, but on the contrary woven intimately within the structure of the organization. The management

of risk is not the realm of the specialists but an integral part of all management processes and frameworks.

Every risk must have an owner: orphan risks are not acceptable. Within that approach, the “RM practitioner” is there to service, coach, and educate the risk owners who must have the authority to make decisions, the resources needed to manage the risks within the limits of their “jurisdiction”, and the capacity to assign the responsibility to carry out the decision to members of his/her staff that have the competences and talents so to do.

In spite of the existence of an accepted glossary, ISO GUIDE 73,<sup>11</sup> the ISO community does not speak one common language about risks in the standards and there remains work to do as the journey continues. However, something must be right about this standard, as a number of countries have adopted ISO 31000 as national standards, including the majority of the G8 and G20 countries as well as the BRIC nations.

All those entering the “risk management process” should be aware that the road to maturity can prove longer than anticipated and reasonable expectations should be set at the outset, and then met or even exceeded, as this is how RM value creation will be evidenced.

#### 1.2.4 Towards Creating Strategy

There are a number of considerations required to begin developing a value-oriented strategy. Some might call these steps but they need to be considered concurrently. They include: defining the customer; defining the customer need for the organization’s product or service; defining the customer value in the services the organization provides; and the determination of the company’s existing competencies. The reason they need to be considered concurrently is that the deliberation towards defining each of these considerations may produce a different conception of the customer, value, or competency that the organization actually possesses. This process is part of the enterprise risk management step of identifying the internal and external context of the organization.

There are any number of ways to conduct this analysis. A SWOT analysis – strengths, weaknesses, opportunities and threats can be conducted within the organization. A team can be assembled to define the competencies that the organization possesses, not just in terms of products but in terms of capabilities. The capability of designing and producing precision toys likely indicates a competency towards precision machining which could broaden the product horizon for the company, even into military or other work. An inverse SWOT analysis can also be used to look at new opportunities. An inverse SWOT could look at weaknesses and threats to competition and customers in order to consider strengths and opportunities for the organization.

The analysis of capabilities may also produce the need for additional competencies that the organization does not possess. The issue associated with the development or the obtaining of additional competencies has major implications for the design of the strategy. The danger is conglomerate thinking – that more is better. Conglomerates have a spotty record of success simply because they often try to do too many things.

Another problem with competency identification is that management may try to stretch competencies too far and assign them to products or services that may not produce any value

<sup>11</sup> ISO 31000 Guide 73 is available for purchase at [http://webstore.ansi.org/RecordDetail.aspx?sku=ISO+31000+%2F+ISO+Guide+73+%2F+ISO%2FIEC+31010+Risk+Management+Package#.UT3PeVfl\\_ko](http://webstore.ansi.org/RecordDetail.aspx?sku=ISO+31000+%2F+ISO+Guide+73+%2F+ISO%2FIEC+31010+Risk+Management+Package#.UT3PeVfl_ko). For a brief summary of ISO 31000 and Guide 73 consult <http://www.iso.org/iso/home/standards/iso31000.htm>.

to the customer or differentiation in the marketplace. However, a missing competency can derail any strategy from being effective. If a sound strategy can be developed that will provide economic value to the organization and significant value to customers, then the strategy should be developed with existing competencies. If the organization determines that there are additional competencies that could expand the value to customer or increase the customer base these should be considered as part of the ongoing strategic evolutionary process, but what provides value today should be developed into an appropriate strategic plan. If no strategy will provide value without the development of additional competencies then the appropriate additional competencies will need to be developed or acquired. What the risk manager needs right now is a confirmed strategy and value chain that can be risk managed. As things change the risk manager can modify the enterprise risk management program to accommodate additional competencies.

Business intelligence associated with existing customers and potential customers can help identify who the existing customers are and even point the organization in the direction of identifying customer preferences. These customer preferences can be analyzed to determine what it is that customers value. Identifying the customer for the product or service is directly associated with value. For example, the customer base may be demographically very diverse. Serving a particular culture, age group, or geography may not be as important to the customer as two-day delivery. If two-day delivery is the value that the organization's customers need and want then the customer needs to be defined as someone who values two-day delivery. Two-day delivery also becomes the competency and the constraint that must be risk managed. The value chain of the organization becomes that which can guarantee two-day delivery.

It is likely that the analysis of each of these considerations will produce many additional questions and need for data. Some of this data may be readily available or can be obtained through surveys or similar customer analysis. Other data may not be readily available so there is an inherent risk in the strategic development process that the organization does not have all the information it requires to make a sound decision on strategic direction.

In recent years organizations have developed mission, vision, and value statements. Rather than being helpful starting points these can be seen as sacred cows that will impede the development of true value chain strategic plans. They can be vague and aspirational and so sweeping that any strategy that is developed will fit. For example, "We are the premier . . ." What does premier mean? "We are the premier . . . as stipulated by being number one in our industry." What does number one mean? "We are the premier . . . as stipulated by being number one in our industry, providing our customers with the highest value for their dollar." What value?

### 1.2.5 A Simple Strategy

Say the organization has determined that the person who purchases their product, for which there is any number of competitors, requires two-day delivery. Two-day delivery is the differentiator for their company compared to competitors. In this instance the organization does not have to produce a better product than the competitor, just deliver it to the customer sooner. This organization determines its strategy as "meeting the delivery expectations of customers" and has outlined its current strategic goals in two parts:

1. Deliver the product in two days or less to customers.
2. Meet quality expectations of customers who require two-day delivery.

Note that these strategic goal statements do not explain how the company will achieve the strategies. The company could use a balanced scorecard or similar approach to develop goals and objectives that will enable the strategies to be achieved. Nor do these strategic statements explain the value chain behind the values that the strategic statements espouse. The strategic statement only explains that the customer for this organization demands two-day delivery for a product that currently meets customer expectations. The strategy has competitive power because competitors have not been able to match two-day delivery within the same cost structure.

The risk management and business operational task once the strategy has been defined is to determine the value chain for each of the two elements. The value chain for two-day delivery will be different from the value chain that produces the product that meets customer expectations, though there likely will be some overlap. Once the value chain has been identified, the risk manager's job is to ensure that appropriate measures have been taken to mitigate the risk to the assets in the value chain from becoming corrupt or unable to fulfil the strategy. All of the risk management tools that are available today can be deployed in this endeavor.

The business side of the organization will likely develop metrics and objectives using a balanced scorecard or similar approach. Some of these may be associated with risk management; for example, the reduction of product liability claims associated with the product. The development of backup or duplicate shipping venues will also need to be explored in order to mitigate the risks from events such as strikes and weather-related risks.

Of course this simple strategy is subject to risks. Competitors may find ways of delivering in less than two days, or a change in customer demand for higher quality, or a product with additional features could derail the current strategy. The value chain organization continually identifies the value that its products generate for customers. If the values change, then the organization will need to determine how it will continue to differentiate itself from its competitors in its customers' minds, and in their purchasing activity.

### 1.2.6 Summary

Strategy must distinguish the organization from its rivals. This distinguishing feature becomes customer value. If the organization can deliver this value to the customers while offsetting the cost of producing the value while earning a reasonable profit (or covering costs for a not-for-profit) then this is a reasonable strategy. It may not be the "best" strategy in all cases but it serves as a starting point. The value that customers and stakeholders want is derived from services and activities of the enterprise including all of its stakeholders. The assets that drive value in the value chain are those that need to be risk managed. Critical risks to the assets in the value chain must be managed or the value could become impaired.

For risk management to be successful it must be embedded into strategy itself. However, the strategy and resulting goals must be attainable and sustainable. In the resulting structure every risk must have an owner; there must be no orphan risks.

Even before risk can be identified, strategy needs to be properly defined in terms of value. There are risks that the strategy will not be or has not been properly defined. If the strategy related to value is properly defined, then the risks to strategy associated with the value chain assets can be managed using any of the tools that risk managers have at their disposal. As the organization, competitors, and customers evolve, strategy will change. The risk manager needs to be at the table during strategic discussions in order to assess the risks associated with strategic change and to make appropriate changes in risk management activities that these changes require.

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### 1.3 THE RISK OF GROUP DECISION MAKING WITHIN ORGANIZATIONS: A SYNTHESIS

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#### 1.3.1 Outline

Why do decision makers find it so inconvenient to come together in order to devise and decide on material action? Part of the answer is that there are many pressing individualized problems that must be dealt with on a day-to-day basis, which divert executive attention from the overall corporate context. The other part of the answer is that all important decisions are affected by uncertainty, an attribute that causes individuals anxiety and discomfort. The successful application of an integrated risk management initiative becomes less associated with the proper use of models and frameworks; it is seen in the governing perspectives and behaviors of decision makers and risk owners.

Group decision making is about negotiating and finding consensus, which are inherently challenging. Every individual has different views, personal (limited) experience and motivations which may influence collective decisions. To reduce anxiety, individuals actively search for certainty just by denying or ignoring uncertainty. The considerable literature on individual versus group decision making explains that there are different patterns of individual versus group behavior. Decision making is generally about taking risk, but risk perception remains a highly subjective and personal issue. One major misconception about risk is the common belief that well-established groups are more effective at identifying and handling risk than a single person. From history, there are myriad examples where such collective consensus did either not work or led to improper if not disastrous and fatal outcomes such as the space shuttle Challenger disaster in 1986 or the massive US subprime write-downs that investment banks and pension funds suffered in 2007 worldwide. Decision making in groups is not bad, but represents a challenging, often latent, strategic risk for any organization. This article will highlight the main aspects of this endogenous organizational risk of group decision making and discusses potential approaches to mitigate it.

#### 1.3.2 Fundamentals – Setting the Frame

Risk is an inherent factor of virtually every human undertaking. Risk and opportunity are intrinsically intertwined and it is thus sensible to appreciate that one element cannot exist without the other (Bewley, 1989). As a whole, it is perhaps pretty accurate to consider risk as neither good nor bad; it is simply present. Of course such a bipolar situation leads to the fact that a “bad” risk for one person can be a “good” risk for another. Ultimately the question is how to address this continuum in order to avoid intolerable outcomes or losses respectively, a key feature of the traditional risk management domain.

When reading through the literature or professional journals one will find dozens of ways of defining risk and what it means to individuals, organizations or entire societies. The term “risk” can be further organized into multiple categories, depending on the person’s vantage

point. These different ways of looking at risk may be valid but it must be appreciated that there is no correct single or predominant philosophy of risk.

In the context of strategy formation multinational organizations tend to accept that there are various descriptive, prescriptive or combined approaches to remain successful (Mintzberg et al., 1998). However, it may take another few years for enterprise risk management (ERM) to become an important contributor to strategic management topics too. Nonetheless it is the human cognition process in particular, as well as the theory of risk perception evolved in areas of psychology, that may assist in the understanding of personal, organizational or societal risk attitude, risk appetite and respective decisions. Identifying a risk is one discipline, the “accurate” processing of it is another discipline, whereas both elements contain a significant level of individual or collective subjectivity. While modern financial theory started to import findings from the fields of psychology and sociology, summarized under the notion of behavioral finance, the perception of the risk-related decision-making process and any interrelated cognitive dissonance has not been fully utilized yet.

Each and every individual defines and perceives risk differently, although it all emanates from the individual’s level of accepted uncertainty and anxiety. As the future cannot be foreseen, (human) life is exposed to uncertainty that in turn creates also feelings of anxiety. Conditions of uncertainty apply primarily where the outcome of an event is either unknown or cannot be accurately forecasted. “Anxiety has no object, and uncertainty has no probability attached to it. It is a situation in which anything can happen and one has no idea what” (Hofstede, 2001, p. 148). This circumstance gets even greater significance when focusing on cross-cultural differences in values or underlying risk perceptions. Based on extensive worldwide research Geert Hofstede proposed five categories that assist in appreciating such differences. Under the category of uncertainty avoidance he concludes that there are always approaches to express uncertainty as risk, but as soon as some degree of likely outcome is evaluated it is no longer regarded as simple feeling; it becomes an accepted routine. This distinction may seem meticulous but with floating boundaries. Nonetheless it becomes highly relevant in decision making at group level, notably in groups with rather low tolerance levels for uncertainty and ambiguity or vice versa.

### 1.3.3 Observed Limitations of Human Thinking

#### *Introduction*

The main challenge in decision making comes from the discovery that it is exposed to a number of systematic behavioral biases. In 1982 Howard Raiffa offered a useful distinction between three different approaches to analyzing behavior, i.e. normative, descriptive and prescriptive. When it comes to risk management or ERM, a considerable number of books have been written in the context of normative theories and the aspect of how people ought to behave. Such theories are based on rational choices, where “rational” means that individuals evaluate all possible alternatives using Bayesian reasoning.<sup>12</sup> The Western Hemisphere is full of laws, regulations, principles, frameworks and guidelines how organizations should manage risk and there are armies of consultants ready to assist in implementing such procedures. At the same time literature and journals provide numbers of diagnoses about poor decision making in

<sup>12</sup> Bayes’ law prescribes consistent rules according to which people should incorporate new information in order to update their existing beliefs.

organizations in the aftermath of remarkable events or fatal incidents. Regardless of the effect, there was always an underlying significant risk component present that decision makers had either not identified, assessed, controlled or monitored. One prominent example is the space shuttle Challenger disaster on 28 January 1986, which killed seven astronauts and destroyed the USD 1.2bn vehicle. The accident was caused by the failure of a USD 900 synthetic rubber O-seal at a joint on one of the solid fuel rocket boosters. The delicate issue in this case was that the performance of the O-ring was known to be affected in low temperatures as was the case on that particular morning of launch. NASA decision makers were aware of these shortcomings but data remained hidden amongst a mass of other launch-monitoring data (McConnell, 1987). A specific risk is usually categorized with a likelihood and impact, but both of these variables can vary as a result of internal and external change. Inappropriate monitoring or reassessing the circumstances created a hidden, and in this case fatal, trap. Another example from the recent past is the massive subprime write-downs that caused banks, pension funds and finally the entire world economy, to suffer. The aftermath of this great financial crisis that unfolded in 2008 is still noticeable in some organizations and countries. Amongst many other financial institutes, the investment division of Union Bank of Switzerland (UBS) whose chairman aimed to form the world's number one investment bank, noticed a widening competitive gap between itself and its peers. A growth strategy and an internal reorganization should have immediately closed the gap between itself and other major investment banks such as Lehman Brothers, Morgan Stanley or Citigroup. Decision makers of UBS longed for success, at all costs. The pressure to report quick wins and growing revenues, which actually became the case during the first few quarters after the growth strategy decision had been made, created misleading positive signals and complacency. Risk management and credit accumulation control activities were completely overloaded as the new growth areas proved to be more complex than expected and required considerable effort across a range of logistics and control functions (UBS, 2008, p. 17). In other words it is fair to state that senior management and risk management had failed to control their investment bank division getting increasingly engaged in the overheated US real estate capital market. Besides the lack of oversight, the bank believed that their subprime positions were sufficiently hedged and the exposure was controllable. The outcome of the decision hit the bank severely, notably a financial loss over USD 40bn, heavy fluctuation within senior management and job cuts that affected more than 6,000 people worldwide. The share lost 70% of its value within a year (Baumgartner et al., 2008).

There have been and will be a myriad of situations where people notice (or have to admit) that a situation appears as "too complex". Insofar as this remains a true and valid statement, as can be seen from the principles of bounded rationality and behavioral decision making introduced later in this section, nevertheless, only limited qualitative and sufficiently longitudinal evaluation on how people really do decide within an organization is available yet. More descriptive insights would help to identify, understand or even close some gaps between theory and practice. Subsequent prescriptive theories would eventually offer advice on how organizations could move closer to the normative ideal, provided that the normative ideal is really the best option for a particular company. The current understanding of risk perception, particularly in groups, and respective decision making remains rudimentary. Economics provides theories that cover each of these areas, but until the last decade economists have rarely taken note of the theories and research of other social sciences and vice versa (Skipper et al., 2007). Recognizing the importance of the human cognitive process in decision making will provide a better understanding and acknowledgement of the limitations people subconsciously are confronted with. Research within the discipline of behavioral finance as a subset of modern

financial theory gradually uncovered that decision making flaws among professionals are barely different from those of laypeople (e.g., Coval et al., 2001). In consequence, being a sophisticated well-educated and always informed expert, doctor, risk professional or senior manager does not guarantee immunity to biases (Gigerenzer, 2013).

### 1.3.4 Organizing and Processing Information – The Human Cognitive Process

#### *Risk Perception*

What can be learned from the prospect theory established by Daniel Kahneman and Amos Tversky during the late 1970s is that people make or are sometimes forced to make decisions in relation to perceived risks and rewards. Perception of risk varies from person to person and is also influenced by various social, political, cultural or psychological factors. It may seem comprehensible that an individual's risk perception might easily change during different stages of life and changes in risk behavior can even be observed during the course of a day (Thaler, 1981). Research in the field of psychology suggests that individuals are usually characterized as loss averse and when in doubt would play it safe.<sup>13</sup> In terms of the human cognitive process it is important to note that so-called "objective risks" do actually not exist but are perceptions derived from human-made appraisals (Skipper et al., 2007). This habit has developed significantly and became a powerful ability for efficient but subjective decision making. It is natural, if not pivotal, when considering how human beings are exposed to thousands of stimuli every day.

To appreciate human behavior in decision making it seems simultaneously important to appreciate the main concept of the human cognitive process. As soon as the human brain is presented with a stimulus, a certain amount of information (visual, aural or other) enters the brain and will attribute it with a schema. A schema can be defined as a cognitive structure that represents abstract knowledge about a concept such as an object, a person or an event (Fiske et al., 1991). Analogously a schema can be compared to a template to be filled with information in order to be matched to a specific situation. If the schema fits it will be used in further processing. To achieve this allocation a schema has to be applicable and available, i.e. an outside stimulus has to be recognized and recalled. Bearing in mind that individuals are faced with tons of stimuli every day, a second highly subjective step called "attention" assists to filter unnecessary information from decision-relevant information. Recognized information is then stored in the short-term memory, whereas some of this short-term memory will find its way to the brain's long-term memory. Although a memory is deficient due to limited storing capacity, each time a schema is actively remembered will strengthen the memory and increase the likelihood to recall it when required (Fischhoff, 1975).

To come up with a timely decision, people automatically make use of cognitive shortcuts called heuristics, which are discussed below. The decision does not have to represent the best solution, but a satisfactory one considering the circumstances (McKenna, 2006). Therefore an individual can become overconfident in his/her abilities of sense making over time and tend to go for repetitive decisions even in the absence of sufficient or accurate information (Simon, 1979). In the context of risk perception this means that the probability of a rare event will usually be overestimated, because of the confirmatory bias of memory (Kahneman, 2011). Thinking about that event activates schemata and consequently a rare event will be

<sup>13</sup> Refer to prospect theory by Daniel Kahneman and Amos Tversky (1979).

overweighted as it attracts attention. Mass media use this approach in order to generate content and audience. Particular well-presented media-hyped dread risks like pandemics, airplane crashes or hurricanes lead people naturally to a biased risk perception (Gigerenzer, 2013). Hazardous risks to a human life like smoking, or writing text messages while driving a car, are perceived as known, controllable and underweighted.

### *Cause and Effect Thinking by Means of Schemata*

Thinking is based on the implicit assumption of causality and this is one of the most fundamental structural features of human mind. It imposes on reality in order to make sense of it. Researchers in behavioral psychology like Daniel Kahneman and Amos Tversky propose that individuals make sense of the world by organizing and interpreting events in terms of cause and effect reasoning (Tversky et al., 1982). The causal schema feels natural and “logically” flows forward into consequences. However, causal thinking is caught in polarity which means that it can hardly process more complex, systemic relationships and is exposed to fallacies. For instance, there is not always objective evidence that cause and effect really do correlate let alone the fact that all causes can get captured and evaluated by one single person (see Kelly, 1994 or Caputi et al., 2006). Due to its simplicity and albeit highly superficial nature, people make or are made to believe causal statements all the time, which in turn can lead to common misconceptions and bias. Statements such as “bankers earn a lot of money” or “foreigners steal our jobs” or “smoking causes lung cancer” can probably be confirmed under some circumstances; they are not at all valid in every case. A high level of uncertainty, irrespective of whether it is imposed on an individual, a group or an organization triggers a search for a causal agent and by finding the causal agent, control over any situation is re-established (Weiner, 1985). Schemata eventually form a strong and illusory sense of logic. People are inclined with greater confidence to infer a consequence from a cause, than they would diagnose a cause for a consequence, even when the consequence and cause provide the same amount of information about each other (Tversky et al., 1980). Or in other words: completely independent cause and effects can be linked together by individuals, as long as it satisfies an easy explanation and “logical” coherence.

### *Heuristics<sup>14</sup> (Cognitive Shortcuts)*

Heuristics in human judgments are a good example of how schemata influence causal thinking. Already in 1974 Tversky and Kahneman originally identified and investigated three heuristics, as briefly outlined below, that in consequence stimulated a vast number of follow-up researches:

1. **Availability heuristic** circumscribes the inclination to estimate the frequency of an event or the likelihood of its occurrence by the ease with which it comes to mind and by its salience. The flood of instant news available today accelerates this bias. After an airplane accident, people consider flying as more dangerous; a similar risk perception about use of nuclear power could be observed after the tragic incidents at Chernobyl in 1986 and Fukushima in 2011.

<sup>14</sup> For further background reading refer to ‘Judgment under Uncertainty: Heuristics and Biases’ by Tversky et al., 1974.

2. **Representativeness heuristic** means the inclination to overestimate the representativeness of a given sample on the basis of looking and associating similarities, beyond statistical considerations that would underpin these judgments. In practice this could end in biases like good companies produce good news or a stranger is more violent than a member of the family.
3. **Anchoring and adjustment** describes the tendency that people make estimations from an initial value and adjust therefrom. Once a value is communicated it sticks like an anchor in people's mind and can be used or misused very successfully. Tests indicated that it does not really matter whether experts or laypeople are asked for estimates on house prices (Northcraft et al., 1987). Anchoring is a powerful highly influential approach used for example in the form of sales promotion in every supermarket.

Hence, schemata provide a very efficient and amazing way of remembering something, as it would be too complex and inaccurate to remember everything. However, this naturally bears some risks and this could be observed when looking at the question of how people make decisions. A cognitive shortcut by means of rules of thumb or intuitive judgment is not bad. It is nonetheless worth considering that it also drives and influences people in organizations. Take sophisticated risk models of a bank for example, where such mentioned heuristics seem to apply in daily business. Financial mathematics provides a key indicator named value at risk that may assist in assessing exposures. Not discussing the usability of this factor here, it was supposed to provide a reasonable estimate of loss on investment bank portfolios during financial crises, such as in 2008. No financial institution was able to predict such value-destroying events when predominantly relying on past data (Gigerenzer, 2013). It is thus questionable whether institutionalized decision aids like risk models mitigate or foster the heuristics of their users.

### ***Bounded Rationality and Risk Appetite***

During the 1950s Herbert Simon came up with the model of bounded rationality. He proposed that instead of following a rational linear process, decision making is fragile. The constraint of human brainpower in combination with time pressure and limited available information makes people unable to solve problems optimally all the time (Simon, 1955). Most cognitive processes will be based on reasoning and therefore logical and rational outcomes are preferred to illogical and irrational ones. The decision maker within bounded rationality looks at all the possible actions and outcomes and separates the outcomes into acceptable and unacceptable, rejecting the latter. The relationship between possible actions and acceptable outcomes determines the action to take. Circumstances of individuals exposed to bounded rationality, particularly if it comes to decision making with highly uncertain outcomes, are explained by the prospect theory developed by the psychologists Kahneman and Tversky during the late 1970s. Their works clarified patterns of behavior that proponents of rational decision making such as the precedent utility theorem developed by John von Neumann and Oskar Morgenstern in the 1940s had ignored. The utility theory provides a basis for rational decisions under risk, according to which decision makers constantly attempt to improve their economic situation and select the one alternative that creates the greatest advantage (von Neumann et al., 1947). However, this is apparently not always the case. Kahneman and Tversky found that the homo oeconomicus model<sup>15</sup> can seldom be applied in practice. One study (Kahneman et al., 1979) exemplified

<sup>15</sup> The model emanated from economics describing an individual who thinks and acts in an absolutely rational manner to choose the decision alternative that produces the highest expected benefit.

the asymmetry of decision making under uncertainty by means of framing the decision choice both in positive and negative terms. Subjects first could choose between (1) a gamble involving an 80 percent chance of winning USD 4,000 and a 20% chance of winning nothing, and (2) USD 3,000 with certainty. The USD 3,000 certain was chosen by 80 percent of their subjects and people behaved risk averse as the utility theory suggests. The choice was then restated into the negative and asked subjects to choose between (1) a gamble involving an 80 percent chance of losing USD 4,000 and a 20 percent chance of losing nothing and (2) a USD 3,000 loss with certainty. Risk aversion suggests that people should go for the USD 3,000 certain loss option but in fact 92 percent of the subjects opted for the gamble. They concluded that in an ideal environment a person's attitude towards risk generally considers risk-aversion as a rational characteristic whereas risk-prone behavior is regarded as rather abnormal. However, in the experiment people subconsciously became risk seekers and tried to avoid certain losses, even when compensated with much higher uncertainty. Following this logic it appears rational that a risk-seeking attitude is considered as negative to a certain extent whilst in practice emotions frequently superimpose or eliminate rational behavior. The difference apparently lies in how the choice is framed. People cannot recognize all the consequences of their actions and this plays a central role in comprehending the underlying behavior of decision makers (Bernstein, 1996). One good example is the decision strategy "satisficing". The aspiration level of the decision maker, which characterizes whether a choice alternative is acceptable or not, is thereby key (Simon, 1979). Simon's model suggest that individuals may commence looking for the best outcome but as they fail to find it (for whatever reasons) their aspirations are lowered and they accept second best. This can be exemplified by the familiar issue of job search. Simon's view would propose that the job search is concluded as soon as the expectations (e.g., function, location, salary, authority) are met. It is also possible that when exceptionally high expectations are not met or the job search runs unsuccessfully, the aspiration level is automatically lowered and previously unacceptable jobs could become desirable in the meantime.

Complexity and uncertainty are evidently a crucial aspect of the bounded rationality model and intuition is similarly often applied as rational behavior. Weston Agor analyzed and summarized the situations when managers might use intuition in decision making, being (Agor, 1986):

- Information is fairly limited.
- Uncertainty is high and there are few precedents.
- Mainly qualitative data available rather than quantitative.
- Available time to make decision is limited.
- Many equally attractive options.

In essence, decisions of individuals are always based within the perimeters of their (bounded) rationality, i.e. on past experience and currently available information. Nonetheless the bounded rationality model is not free of critique as, for example, satisficing could also be seen as an emotional response rather than a cognitive one (Kaufman, 1999). Others argue that the borderline between bounded rationality and more structured decision making models may be not as rigid as proposed, as decision makers tend to intrinsically combine strategies to solve decision problems (Behling et al., 1976).

### ***Prediction Momentum***

Evaluating the risk of making a decision uses knowledge of past events, and as a consequence assumes that acceptable outcomes from the past will continue to be acceptable in future,

unless something interrupts the existing (bounded) rationale (Fischhoff, 1975). This concept is known as prediction momentum and finds its analogy in physics where Newton's second law of motion states that any body will continue in its present state unless some other force acts upon it. If it comes to forecasting an end state, the decision maker notoriously infers what the future is like before the proposed action takes place and also infers what the future will be like after the action, known as hindsight bias. People are confident in their ability to predict a future event on hindsight, which means that they naturally seek information confirming the quality of their own predictions and tend to misremember their predictions (Fischhoff, 1975). Consequently an individual will "recall" more correct predictions than actually made. This also addresses the notion that a decision is never wrong; the point in time may be. Learning requires accurate feedback on past experiences (Kolb, 1976). However, a predominance of biased recollections therefore precludes true learning from experience. In other words: how to learn from errors if not all the errors are remembered?

The future is by default uncertain. Decision makers may accept uncertainty even with the most careful predictions. Assumptions and inferences are likely to be wrong or inaccurate over time due to unexpected or unknown events. ERM or any other systemic forecasting framework will consequently serve as a useful approximation to reality for organizations and societies. However, it is important to also consider that the longer the timescale, the more difficult the predictions. As soon as a number of unknown variables come into the equation it will make every forecast fuzzy. Any prediction is in turn based on accurate and available data and organizations need to cope with economic as well as business intelligence (Louisot et al., 2010). The size of an organization eventually influences the (financial) resources that were attributed to such forecasting procedures. Fewer available resources may lead to less accurate predictions. However, such hypotheses could neither be accepted nor rejected for the time being.

### *Anomalies and Bias*

As history shows individuals, groups, organizations or even entire nations are not immune to the limitations of the human cognitive process. By means of the prospect theory four most prominent cognitive shortcomings are explained below:

**Decision Regret:** People have a natural tendency to avoid losses at all cost (Loomes et al., 1982). Decision regret means that an individual would rather reject a right option than accept a wrong one or in other words, a "bad" choice hurts far more than a "smart" one, even if the latter turns out wrong. If a decision is enforced, people play safe and avoid being (publicly) exposed. This is one of the reasons why decisions are delayed or simply not made, because they could be painfully regretted (Loomes et al., 1987).

**Sunk Cost Effect:** Sunk costs are the costs that were incurred in the past and as a result cannot vary with respect to future output. The primary finding that people will throw good money after bad is well described by the prospect theory (Kahneman et al., 1979). Expenditure on product development or house building incurred in the past is a typical sunk cost and should have no bearing on whether to continue developing a product, finalizing the house respectively. The sunk cost effect is circumscribing the influence that historical, irrecoverable costs exert on the willingness to make future investments (Arkes et al., 1985). One of the classical mistakes is that people would invest money into existing venues, in the hope of one day being able to equalize or justify the amounts already spent.

**Mental Accounting:** The basic principle is that people tend to “book” the payments connected with a decision into different mental accounts (Tversky et al., 1981). Separating a whole into individual components instead of looking at the big picture and making related decisions could create an enormous imbalance within an overall risk portfolio. ERM could be considered, for example, as one important factor to overcome mental accounting in respect of risk management decisions that are usually made on departmental levels, which presumably focus on hazardous and insurable risks only. Whilst a risk management professional would immediately recognize the necessity of a reasonable risk management strategy with allocated (financial) resources to achieve the objectives, senior management and particularly the financial department will primarily recognize this as a cost driver. The longer no material incidents occur, the greater the discussion as to whether the underlying (sunk) costs are justified at all.

**Endowment effect:** The endowment effect (Thaler, 1980) stresses that most people demand a significantly higher sale price for something they possess than they would be willing to pay for it if they did not own it. Although findings of such effects are related to numerous investment decisions, this shall not be confused with greed alone. Although it is comprehensible that possessed items carry automatically a higher value and a consequent resale should be realized as a gain, the spread between appropriate and requested value appears often very significant. In the context of ERM such a phenomenon could likely occur during the determination or re-evaluation of buildings and material in a property insurance program. If such values are owned, risk professionals maybe inclined to ascertain higher values than economically justified.

It becomes obvious that all decisions are somehow exposed to personal or group biases that misinterpret data or observations because of individual perceptions or outcome preferences. Psychology uses the theory of cognitive dissonance originating from the 1950s work of psychologist Leon Festinger. The theory in brief states that people have misgivings about their decisions as the alternative chosen has positive and negative characteristics and so does the rejected alternative. Based on individual cognitions such as available information, beliefs, values and elements of knowledge each attempts to eliminate inconsistencies in perception (Festinger, 1957). One of the preconditions for the existence of dissonance is an emotional tie with the decision that has been made, labeled as “commitment”. Research evidenced that there is a functional relationship between level of commitment and dissonance aroused when the underlying decision does not turn out as imagined (Brehm et al., 1962). The degree of commitment and the intensity of the resulting dissonance depend on five factors being freedom of choice, responsibility, material costs, psychological costs and deviation from the norm. Research also uncovered that groups who made an initial collective decision that proved unsuccessful, have allocated significantly more funds to escalating the commitment to the decision than groups who inherited the initial decision (Bazerman et al., 1974).

### ***Asymmetric or Non-Existent Information***

Apart from the personal or organizational schemata subconsciously in use, another important aspect worth considering is the level of accurate and relevant data and information available at the time of decision making (Agor, 1986). Based on economics and the recognized market imperfections, everyone can agree or has personally experienced that in practice buyers or sellers often lack sufficient information to make a fully informed decision. The same

principle applies in any decision making process, including classic risk transfer of insurance where negotiations between insured and insurers take place. Hence the problem of asymmetric information has to be factored in at every decision to be made. Imbalanced degrees of information can be classified in various ways but eventually lead to the fact that at least one of the parties may only disclose information that is ultimately required or requested. In-depth research or investigations of the counterparty can uncover important additional facts and assist in assessing and evaluating the risk of making a decision. However, a so-called residual risk always remains and trade-offs are inevitable. This means that either the cost of eliminating (instead of reducing) a risk is too high or eliminating the risk is impossible to achieve. There is a functional relationship between the cost of reducing a risk and the extent to which the reduction is achieved (Skipper et al., 2007). The functionality will reach a point where it becomes extremely expensive or uneconomic to make any further reduction in risk particularly when searching for information prior to any decision. Additionally there is also a level of non-existent information, mainly associated with macroeconomic factors (political, economic, social, technological, ecological or legal development) that increase the level of uncertainty for all decision makers and many risky decisions could also impose costs on others (externalities), which is an important factor to watch within the discipline of societal risk management (Skipper et al., 2007).

### 1.3.5 Summary

As with any other generic and path-breaking theories that emanated from economics or psychology during the last 50 years, it is important to note that the majority of experiments are contrived and may not reflect real-world conditions. It would also be inappropriate equally comparing utility theory with prospect theory, as the utility theory features a more numeric (positivist) approach whereas the prospect theory contains a mostly linguistic (phenomenological) methodology. It is important that decision makers and risk owners know and appreciate the limitations of human thinking and consider this at best possible terms when evaluating a choice. The risk of flaws and blunders during the decision making process will, however, gain significance when such aspects are ignored or glossed over. Particularly, decisions made in groups tend to be prone to divergence and dissonance as discussed in the following section.

### 1.3.6 Behavioral Decision Making in Groups – Power of the Crowd

#### *Introduction*

Today, many businesses utilize committees, project teams or other group activities to discuss matters in great detail and arrive at generally safe and risk optimized decisions, provided a group is able and willing to make a firm decision. This is in fact a pretty incomplete opinion. Insights from the field of cultural anthropologists (Skipper et al., 2007) enhance the context with their conviction that risk perception stems from a social process. Literature (for example Dake, 1992 or Hofstede, 1995) suggests that individuals act differently when part of a (peer) group, as the sense of group is primarily stronger and promotes solidarity and interdependence. Consequently the group impacts on and strengthens individuality with a tendency that such individual is prepared to make more risky decisions than he/she would make alone. This increased risk-seeking level of a group member echoes and reflects on the group as the collective outcome tends to approximate the average of individual outcomes.

There are two primary reasons for this behavior. First, people become anonymous in a group and the level of decision regrets is decreasing. Then in a group environment it becomes less obvious who initiated or proposed decisions with poor outcomes. Second, individuals being part of a group tend to revalidate personal choices and avoid difficult and stressful decision dilemmas (Janis, 1989). Depending on their role within the group, people generally incline to be seen as risk-seeking rather than risk averse as this attitude may be considered as brave, bold and in some cultures more attractive (Hofstede, 2001). This forms the breeding ground for overconfidence or over-reliance on routines.

### ***Communication Difficulties as Main Challenge of Group Work***

Stimulated by the familiar notion “one who reckons does not really know”, Jerry Harvey’s story about the Abilene paradox remains memorable (Harvey, 1974). He characterizes a family scene in a house on a Sunday afternoon in Coleman, Texas. The temperature is hot at 104° and the wind is blowing fine-grained topsoil. It is just one of those relaxing Sunday afternoons only tolerable with a cooling fan and a fresh drink on a porch. Suddenly, Jerry’s father-in-law says, “Let’s drive to Abilene and have dinner at the cafeteria.” Jerry thinks, “Why go to Abilene? Fifty-three miles in a dust storm and with this heat, in a non-air-conditioned Buick.” But his wife says, “Sounds like a great idea, let’s do it. How about you, Jerry?” Jerry replies, “Sounds like a great idea, I just hope your mother-in-law wants to go too.” “Of course I want to go,” she says. “I haven’t been to Abilene in a long time.” So, the family went to Abilene in the heat, dust and a fine layer of perspiration, where they finally eat a terrible meal. On completing the long round trip, each of the family members argues that they would not have gone if the others had not wanted to go. Even the father-in-law claims, “I never wanted to go. I just thought you might be bored. I would have preferred to play dominoes, but you visit so seldom that I wanted to make sure you enjoyed the time with us.”

Jerry Harvey concludes that the Abilene paradox is similar to many organizational situations, i.e. choices are validated even though all individuals involved have their reservations – they simply are not voiced. “The key issue is the lack of honesty in communicating thoughts and feelings” (van der Heijden et al., 2002, p. 71). In groups, homogeneity, cohesion and shared experience keep traditions alive and lead to hidden routine processes that are guides to thinking and acting (Bazerman et al., 1974). In extreme cases, attitudes of smaller teams or peer groups can even negatively divert from corporate thinking, which may end in very polar perceptions. Development of sentience or a misplaced sense of identity between professions or specializations could create a material endogenous risk on overall strategy of an organization. It seems all too human that a group of military leaders having studied and trained for war for a substantial time of their life are inclined to go to war. Similar tendency may apply for any other expert group such as salespeople, engineers, firemen, consultants, etc. In essence they subconsciously all want to sense and exercise their “vocation”. Particularly if it comes to group dynamics and commitment there are various reasons why risks might be taken just for the sake of taking them or alternatively the group does not consider risks but only sees opportunities. Such reasons include but are not limited to groupthink, bravado and desperation (Russo et al., 1989). Considerations that are not communicated could result in a difficult situation, both for the group as well as for the individual. Many decision makers see a direction as a solution because they do not know what they want until they see what they can get (Wildavsky, 1979). While having a ready-made idea may generally appear as convenient, there is a risk that options worthy of consideration will be prematurely eliminated. The

likeliness of similar thinking in any kind of peer group appears given. To illustrate this, take the recruitment process of an organization as a simple example. Today recruitment decisions are usually made in groups of at least two people. Apart from working for the same company the interviewers may share a number of common views and values and therefore feel very comfortable when jointly making the decision to employ a candidate. However, it is not usual practice to monitor what happened to the candidates who were rejected. Unless accurate feedback is gained, decision makers do not really know whether their decisions were sound, which forms a dilemma. Individuals and groups seek confirming evidence that supports their favored thinking. There is an underlying iterative danger of self-fulfilling prophecy and increasing confidence to make the right judgments (van der Heijden et al., 2002). Groups with a high level of uniformity are exposed to biased and uniform decisions, also known as groupthink (Nutt, 2002).

### ***Groupthink***

People with homogenous backgrounds or obvious similarities often constitute formal or even informal, random groups with high commitment and motivation. In her works during the 1960s anthropologist Mary Douglas illustrated the power of common moral, beliefs and political or religious order, which triggered considerable follow-up research in this area.

Today, groups or teams process much of the work, particularly in large organizations. When it comes to efficient decision making and managing risk, groups or teams may have a drawback called groupthink. Groupthink is the collective social suppression of ideas to maintain harmony and the tendency to concur with the prevailing positions and views of the group (Janis, 1989). Groups with high cohesion and commitment create shared stereotypes, beliefs and self-censorship among team members, where dissenting voices fall silent. Powerful group cohesion can lead to an intolerance of any dissenters such as people with alternative points of view or ideas (Bazerman et al., 1974). Taking into consideration the discussion about schemata in the previous section, groupthink is exposed to filter incoming information to portray only good results and nobody dares to criticize the present decision making processes or its leadership. This is likely to result in incomplete survey of alternative courses of action (March, 1988) and may even lead to incorrect risk assessment and consequent handling. Thus implications of groupthink for analyzing risk and developing alternatives within the perimeters of organizational risk appetite are very significant. The phenomenon has a very powerful track record of groups that incorrectly identified, evaluated or handled risks. Interested readers can learn more about decision debacles in, for example, the book *Why Decisions Fail* by Paul Nutt, who cross-sectionally researched and documented over 400 strategic decisions around the world during the last three decades.

### ***Inertia of Groups***

Decision making in groups is exposed to two extreme forms, either overreaction or no action at all. “When teams work well, they elevate the performance of ordinary individuals to extraordinary heights. When teams malfunction, they erode the potential contributions of the most talented members” (Boleman et al., 2003, p. 95). The same applies for decision making in groups when individuals are compiled in looser or non-hierarchical forms or tighter strongly controlled structures (Russo et al., 1989). No group is immune to having flaws or generating

biases in collective thinking, though routine and overconfidence may increase the likelihood of framing issues poorly (Nutt, 2002). When focusing on risk-related decision making it seems appropriate to simultaneously consider the extensive literature available on innovation. As a general observation it seems fair to state that “company leaders privately acknowledge the need for new ideas but shy away from introduction arrangements and approaches that can stimulate creativity in management initiatives, such as decision making” (Nutt, 2002, p. 147). Business economics suggests that decision makers should determine opportunities and identify risks and how they can be managed (Mintzberg et al., 1998). In corporate environments a fresh idea has naturally a long and steep way to go. Ideas have to be formulated in great detail and coherence evaluated, i.e. the more complex the internal organizational structure, the less likely the discovery of a path-breaking idea. Groups generally gravitate to consensus or in doubt prefer the status quo (Simon, 1979). It is difficult to think about or solve risk/benefits conflicts; it would require the disregard of own personal motivations to the benefit of the group or organization respectively. Even with the best intentions, groups are most often confronted with the dilemma of achieving a degree of consensus that initiates action or that navigates around delicate exhausting subjects, both of which aggravate the risk of ignoring signals of unexpected change (van der Heijden et al., 2002). Depending on the group’s size and the assigned underlying tasks, group work could become clumsy and its individual members lethargic. As long as performance or any circumstance is perceived to be satisfactory, routine or business-as-usual is key and management (or even public attention) remains rather low (Janis, 1989). Decades of research into innovation reveal that incubation should occur before innovative ideas surface, but this is hardly achievable in a safe, funneled comfort zone with well-versed procedures and formalized hierarchical structures (see Christensen, 2006 or Drucker, 1985). Risk is as important as opportunity and the significance of a given risk can vary in relation to circumstances. However, the most significant risk may be those that have not been identified or wrongly interpreted. Furthermore, it seems unforgivable to abandon or detach evolving pre-mature cognitive ideas or clues, both in terms of innovation or risk management.

### ***Situation and Context – The Level of Available Information***

During the 1970s, Edward J. Russo demonstrated from marketing research that choices are strongly influenced by the way in which information is presented. In the context of a supermarket he noted that customers’ information processing is influenced by the sequence in which they walk through the racks and come across the brands. Russo arranged a list with unit price information for a range of similar products to be displayed at the end of the aisle, ordered with the most expensive at the top and the cheapest at the bottom. In his study he found that shoppers chose the cheaper brands in those situations where a well-ordered price list was available. In reality, supermarket owners would hardly provide such a price list due to revenue considerations. More generally, however, Russo could evidence that choice can be influenced and changed by changing the way in which information for the decision is obtained (Russo, 1977). Observations of other research confirmed that choice is contingent on the decision situation or context (Kahneman et al., 1982), which means that decision makers frame the context in situations with a single dimension of cost and several dimensions of benefits differently. Considering a complex issue with various options being discussed under a level of uncertainty within a group could lead to the situation that people try to simplify the decision making process whenever possible and become inclined to use either intuition or other

non-compensatory<sup>16</sup> decision strategies within causal thinking. This is all comprehensible, particularly when bearing in mind the reservations of bounded rationality and heuristics mentioned earlier. Such in-depth knowledge of natural human limitations has even been commercialized, as the marketing discipline has successfully demonstrated such suggestive practice for decades. This know-how is also used to form and influence chain of arguments or to sway the outcome of a decision in one or the other way. Without going too much into detail of influencing people, it is worthwhile to mention at least one example known as intransitive preference. There is a possibility where a set of choices is contradictory, usually because the choice between different pairs of alternatives causes the decision maker to focus on different attributes (Belton et al., 2007). Imagine you go shopping and in respect of a specific product the following decision strategy should be applied: “If the price difference between brands is less than 50 cents choose the higher quality product, otherwise choose the cheaper brand”. The following choice alternatives are available:

Brand	Price	Quality
A	USD 3.00	Low
B	USD 3.30	Average
C	USD 3.60	High
D	USD 3.50	Medium

If the choice were between brands A or B, then brand B would be favored. If the choice were between brand B and C, brand C would be chosen. If the choice were between brand A and C, brand A would be selected. It follows that using what appears to be a sensible decision strategy results in B being preferred to A and C being preferred to B. This would imply that C is preferred to A, but in fact, A is preferred to C. Depending on the criteria, the set of choices become contradictory and a selection which first seemed reasonable suddenly gets irrational. Similar observations can be made if it comes to consensus decision featuring multiple criteria as well as different parties with differing objectives (Belton et al., 2007). Some argue that voting eliminates the power of any individual and it enables the weight of opinion to sway the decision. However, voting is as subject to manipulation as any other decision technique, although less recognizable. Voting procedures can lead to similar intransitive paradoxes described above. This should be borne in mind by the team member who is frequently part of a consensus voting team.

### Summary

Every group evolves a structure, though the formal design may not be coherent with the underlying hierarchy (Boleman et al., 2003). These informal dynamics have a remarkable influence on when and how group decisions are made. Biases in individual thinking may rise and expand in a group context, which will impact collectively made decisions. There is some psychological evidence to suggest that groups form and frame possible solutions in much the same way as individuals do (Janis, 1989). The group seems to act as a kind of “collective brain” that represents the sum output of each of the individuals who are represented in the

<sup>16</sup> A non-compensatory choice strategy is where poor performance on one attribute is not compensated for by good performance on other attributes (Belton et al., 2007, p. 19).

group. Other observations suggest that the riskiest solutions are arrived at by groups acting as advisors or counselors to an overall leader. The group generates more risky solutions than most of the individual members would have done, but the final choice is made by one single leader, who in turn exhibits an individual risk temper based on the collective group response (Nutt, 2002). This type of situation is typical for material decisions that have to be made quickly and within a high-risk environment based on limited information (Belton et al., 2007). In any event, when visualizing the story about Abilene it seems clear that even in simple non-critical and low context situations, group behavior and bad assumptions could dominate group dynamics (for years).

### 1.3.7 How Organizations Deal With Decisions – Will ERM Assist?

Without risk there is no reward and risk eventually breeds innovation (Rogers, 2003). In consequence, risk is therefore to be encouraged within an organization as long as it is carefully managed. There are various types of risk management approaches in use, whereof ERM methods eventually provide a holistic and systemic approach in order to deal with strategic, organizational, change and unforeseeable risks (and opportunities). The concepts are by far not new but they are gradually getting more normative attention and character, also by legislators and authorities. Everyone agrees that risks are everywhere and every crucial decision should be the result of a careful risk diagnosis (Bewley, 1989). However, most risk assessment is intuitive and should be practical, realistic, compliant with (internal and external) standards and above all remain cost efficient (Louisot et al. 2010). Protecting the economic value of an organization remains the overall objective (Skipper et al., 2007). The enhancement from an existing risk management practice to ERM may break up habits and scrutinize the corporate risk approach from various perspectives. However, as experienced in quality management systems, risk management approaches can soon become extremely complex, labor-intensive and costly (Skipper et al., 2007). The previous sections about the limitations of human thinking and group decision making will in the short-term not encourage senior managers to follow too advanced methods. Nonetheless it is not all that arbitrary. There are rudiments that close procedural gaps and mitigate subjectivity, although there are no standardized recipes available. Ultimately it all reflects back on good leadership.

One major topic to be remembered is that organizations should consider endogenous (behavioral) risks as they would consider material risk from the environment. Irrespective of the decision maker's job level, individuals will follow cognitive habits in their thought processes and behavior (Caputi et al., 2006). Some of those practiced habits seem quite handy as it leads to increased efficiency. When it comes to significant decisions facing major strategic stress, it seems utterly important to choose the right decision strategy. Apart from the skills which individuals and managers may possess, leadership style and company culture exert a significant impact on the ability of the organization to make decisions and undertake change. Organizations vary substantially in their approaches to leadership, which is the subject of significant management psychology research. Some organizations lay stress on a hierarchical structure and adopt a rather top down if not dictatorial approach to decision making (Boleman et al., 2003). Others attempt to be democratic, making efforts to involve employees at all levels in the management process by adopting such policies as "open door" and management by walking about (Mintzberg et al., 1998). In some instances it may appear obvious that the management style is not consistent with planned strategic changes and this is another way that decisions could get biased or even manipulated (Nutt, 2002).

Management literature provides a number of approaches to formally assist in achieving an “objective” decision such as decision trees, multi-criteria decision analysis, sensitivity analysis, cost-benefits assessments, risk modeling etc. where alternatives are scored and weighted or probabilities and impact are assessed (Belton et al., 2007). Irrespective of the approach applied, all tools create certainty with mathematical precision and in turn offer the best (available) solution. At times the most sophisticated systems fail and that could be a reason that at first glance the holistic ERM process still lacks prominent adherents and extensive corporate support so far. A system or a process is not a substitute to making own decisions. It is a technologized compilation of human behavior (March, 1988). People like to be able to rely on a consistent system of opinions, beliefs and knowledge as it creates stability, which results in certainty. Even after decisions are made, people could theoretically ask themselves whether they made the right choice. In practice, presumably they discretely do so, but within an organization it is easier to adapt the perception of the situation to conform to the decision made (van der Heijden et al., 2002).

As Geert Hofstede observed in his research on uncertainty avoidance, or Daniel Kahneman and Amos Tversky developed under the prospect theory, it seems fair to assume that people make a subjective evaluation of risk, subconsciously driven by underlying uncertainty about future events (see Hofstede, 2001 or Kahneman et al., 1992). Organizations will always carry a residual risk of not identifying, poorly assessing or failing to monitor or control circumstances that lead to a loss of economic value. The poor framing of issues may solve the wrong problems (March, 1988); just as wrong information provided would lead to wrong conclusions. People tend to stick to their patterns and habits while talking to the same group of people who see the world similarly (Janis, 1989). Group consensus is laudable, but often not achieved through an iterative process of discussing conflicting arguments or circumstances. In the context of day-to-day management, where operational decisions need to be made, non-compensatory decision strategies are probably rather positive and acceptable. However, the accurate decision strategy in the scope of strategic or unforeseeable risks or uncertainties is essential and the discovery of unseen or undervalued linkages within the business context eventually key. ERM may provide a way for less causal and more systemic thinking, provided that honesty in communicating thoughts and feelings is not hindered or censored by group dynamics. In other words, schemata and causal thinking are a good natural starting point but should not form the end state when high-level decisions in a group become necessary. To clear and reset existing habits of a group, it seems inevitable that each individual member including the chairman (if any) evaluate and accept his/her predominant attitude to uncertainty and risk. People who embrace and appreciate uncertainty by allowing imagination and vision are able to transcend inherent bounded rationality for a certain time. This may only be achieved when leaving pressing operational issues outside any meeting room, wipe off existing fashions and entirely focus on the applicable subject. James March suggested five aspects to help individuals and organizations to leave existing habits and pave the way for new thinking (March, 1988):

1. **Treat goals as hypotheses.** It is human to doubt, but the likelihood of doubting one’s own objectives is rather low. March argues that goals should be seen as a hypothesis that intrinsically leads to seeking alternatives.
2. **Treat intuition as real.** According to March, intuition is presumably just an inexplicable way of consulting that part of intelligence not organized in the way standard theories or models could cope with. Intuition is rather a partner to think about actions outside the usual (rational) behavior.

3. **Treat hypocrisy as a transition.** Hypocrisy is described as inconsistency between expressed values and behavior. People usually reject inconsistency, though mankind at least mentally experiments with non-ethical shady considerations too. March suggests that such process is fair within the merits of controllable experimentation and should not be hindered.
4. **Treat memory as enemy.** As learned from the scope of the human cognitive process, good memories ideally make good choices. However, exercising the ability to memorize will evoke the ability to overlook or forget things at the same time.
5. **Treat experience as a theory.** March sees learning as series of conclusions based on concepts of action and consequences. Experience can be changed retrospectively, as evidenced in the studies of hindsight bias. He proposes to frequently affirm the ability of “self-deception” in experience and acknowledge that experience is an interpretation subject to conscious revision.

To consult an experienced individual from outside the organization who acts as impartial facilitator during crucial decision making sessions seems not to be a bad idea. Otherwise the probability to fall back into the usual roles and patterns of the group is rather high. Particularly, group activities such as strategy development, expectation approach or scenario planning seem to be ideal areas in which to introduce a facilitator, ready to assist the collection of and, more importantly, to devise, various differing perspectives, opinions and drivers.

With regard to behavioral decision making within groups, below is a brief summary of factors to watch and suggestions to try:

**Information Processing:** Economic and business intelligence that is easily available for one should be made available for others. Proper information is a crucial feature for accurate decisions. Latent schemata of individuals will bias the way data and information is collected. Therefore it is advisable not to rely on a single source only. Furthermore, continuously repeated news in different media does not make a situation more desirable or more risky. It is simply more often reported, regardless whether justified or not. If it comes to scenarios or general forecasts of any experts, prudence is key even though individuals are often hooked on something due to pattern recognition and attention, i.e. their information filters are biased or influenced.

**Timing:** Difficult decisions made in a hurry seldom turn out well, and due to hindsight bias this is anyway difficult to validate. Moreover, under time pressure people may use non-compensatory defensive decision strategies such as satisficing and thereby consequently increase the likelihood of failing to consider all options, i.e. all available attributes or any alternative solutions. Taking time to make a more complex decision is not a weakness as long as a decision will be finally made.

**Dissonance:** Devotion and commitment influence many decisions. Everybody is exposed to cognitive dissonance. In groups with high homogeneity, overconfidence and complacency flourish. In order to elaborate a decision in a group, unless there is a particular incident to be examined, it is better not to focus on past events but to provide new food for thought (stimuli). Trying to refocus the approach towards avoiding losses (as per Kahneman and Tversky’s experiments) may potentially reveal surprising risk-seeking behavior. Another approach could reveal escalating (emotional) commitment and illustrate how subjective topics could get.

**Routines and Habits:** The notion “believe it in order to achieve it” is pretty powerful, as an individual’s convictions cannot be changed overnight. Maybe they should not be changed at all. However, it is advisable to occasionally take individuals out of their comfort area and impose a change in habit. Putting people in a fresh cognitive condition gets them into a mental state in which they are more apt to find creative ideas (Nutt, 2002). Consider a meeting where all attendees have to stand around instead of sitting comfortably in a chair drinking coffee and eating a cookie for example, may produce significantly different outcomes. Also the time of day is influencing the activity level of a group (Brehm et al., 1962). Overheated discussions with no expectable solutions should be interrupted. De-emotionalizing the venue and rewinding or even sleeping over it could effect miracles. If not, it will at least save time and energy and may ultimately lead to a vigorous clear approach the following day.

It is obvious that every organization has its own procedures, risk attitude, behaviors and culture. What works for one may not work for the other, but there are similarities and common issues that affect entire industries or even societies. A lot of information and context has been provided throughout this article. However, the most important finding about group decision making in organizations is to cherish an open learning environment. It may all start with observing one’s own (decision making) behavior, to keep watching and not get stuck in routine patterns. Major progress is only achievable when individuals, including staff, appreciate the importance of a frank and honest dialogue. Vocalizing concerns or providing critical reflection without being characterized by any (group) bias is therefore one crucial element. The courage to face anxiety and accept responsibility is another. No doubt there are many subconscious obstacles in an organizational or cultural environment that hinder or misguide proper learning and abandon creativity (Christensen, 2006). However, flaws, errors or unpleasant negative decisions should primarily not be a question of guilt and punishment, but eventually an indicator of a too-strict normative and causal thinking. There are approaches like ERM that exploit new ways of corporate thinking. The only major challenge is to rediscover one’s own personal curiosity and eagerness to continuously learn and competently develop within a team, group or organization. Ultimately, it could result in achieving unforeseen competitive advantage, personally and corporately.

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For readers wishing to further expand their understanding of decision making and the issues raised in this article, the following shortlist of recommended reading may be considered:

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