THOUGHT LEADERSHIP FORUM

RISK: MANAGING RISK WHEN THE CONSTANT IS CHANGE

26TH NOV. 2002

FIRST TUESDAY ZURICH

GDI for economic and social studies

Results and Findings

Think Tank > Panel & Discussion > White Paper

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Foreword

An introduction to the Thought Leadership Forum and topic

Thought Leaders

The 18 leading experts who brainstormed about Risk Management

Thought Starter

Commissioned research providing background on the issues of risk management

White Paper

Results of the Risk Thought Leadership Forum

Keynote

"The duality of risk"

Evening Keynote Speech by Claudio Ciborra, London School of Economics

Producers

The producers behind the Thought Leadership Forum

Foreword

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First Tuesday Zurich and the GDI introduced the Thought Leadership Forum 2002 to Switzerland as a new way to look at key strategic issues.

We have looked to the power of independence and diversity, of different viewpoints debating the same issues, as an important tool to generate new insights and solve problems. In this world of increasing specialization, which is more than offset by escalating connections and globalization, our best chance for insight is often not individual or isolated experts, but networks. Networks of experienced professionals, which matched up with those with fresh perspectives, can work together to create knowledge and intelligence inaccessible in isolation.

We have worked to build on established techniques like brainstorming, and leveraged technology and research to create a format that is powerful, intense and extremely efficient. We view the Thought Leadership Forum as a dynamic format and platform to share ideas, push the boundaries, and create new insights.

The Question

The economy is global and networked. Developments, opportunities and risks can be sudden and exponential, or dangerously slow and incremental. The advantages of working in an open and connected world are harshly offset by the vulnerability of reputation, data and knowledge. Managing risk effectively is essential to thrive and survive in this changing world.

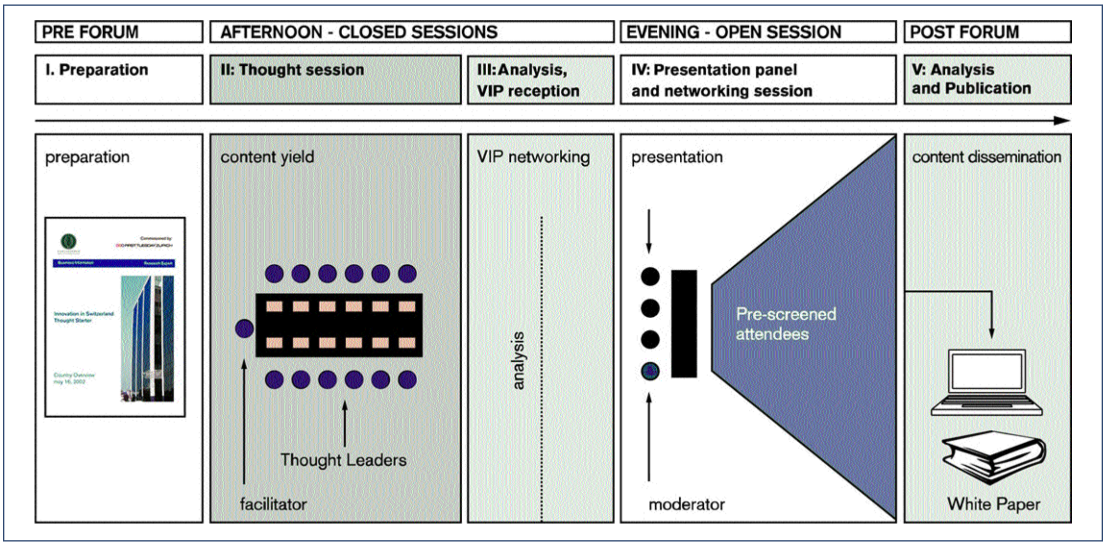
How to balance analysis with intuition, financial tools with common sense, and careful planning with enhanced flexibility? What are the biggest risks and how should they be managed? And finally, what are the risks of managing risks? These and other related questions were the focus of this Thought Leadership Forum.

The Format

The Forum begins with a structured brainstorming session bringing together a relatively small group of Thought Leaders focusing on the topic of managing risk. Thought Leaders gathered on Tuesday, November 26, 2002, at the GDI in Rüschlikon near Zurich to spend an afternoon brainstorming together on the topic of “Risk: Managing risk when the constant is change”. Differing perspectives, as represented by senior level decision-makers from various sectors (financial services, consulting, software developers, researchers, visionaries, academia and a balloonist) accelerate the development of new and meaningful insights and ideas. The Thought Session was moderated by Susan Kish, CEO, First Tuesday Zurich. In the evening, a VIP audience joined to hear and comment on the initial Thought Session results.

Within a single afternoon and evening, this Forum provides an opportunity to meet, tackle key issues, and to discuss and disseminate the findings to a wider group. Following the Forum, the results were analysed and produced into these Results & Findings.

Foreword



The Results

Included in the results from the Forum are the following papers:

White Paper: Key analysis of the results of the afternoon think tank among the Thought Leaders and the input of the evening VIP audience.

Keynote: Transcript of the keynote address from Claudio Ciborra, Professor, London School of Economics.

Thought Starter: Background research about risk management. It was commissioned by First Tuesday Zurich and the GDI, and written by Evalueserve.

We would like to extend special thanks to our Presenting & Knowledge Partner PricewaterhouseCoopers, our Forum Partners Credit Suisse Group, Microsoft and Open Systems, and to our Supporting Partner Ericsson, whose support for this Forum was crucial to its success. Many thanks as well to our Software Partner groupVision and our Supporter Print Assist AG.
We would also like to extend our thanks to the Thought Leaders, the staff of First Tuesday Zurich and the GDI and the evening attendees for their attendance and contribution.

Susan Kish
First Tuesday Zurich

Samuel Dubno
Gottlieb Duttweiler Institute

Thought Leaders

Thought Leaders

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EVALUESERVE
Expert Knowledge Services

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Business Information – Market Overview 26/11/02 – Research Expert

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EXECUTIVE SUMMARY

Risk management practices are evolving from a fragmented approach to a comprehensive view of risk, which is supported by risk management structures.

As a result, the focus of the risk management process is shifting from hazard management and compliance to practices that include strategic planning and operational evaluations, which ultimately enhances shareholder value.

The key highlights are:

- Risk management has gained a lot of importance in recent times, because of multi-billion dollar losses suffered by companies.
- Companies have become increasingly vulnerable to risk due to the changing nature of risk in the working environment and the absence of comprehensive risk management approaches.
- A variety of analytical tools exist, but they often fail to manage the most obvious risks.
- Increased demand for Transparency/Accountability requires disclosure about more topics to more target groups.
- Risk management and value-based management are going to converge.
- Risk management has become as important to a non-financial organisation as it has traditionally been for the financial world.
- Increasingly companies are adopting Enterprise Risk Management (ERM) to manage the risks they face.
- Regulators, top management, organisation structure, corporate culture, technology and stakeholders play an important role in risk management.
- Risk management is becoming an integral part of corporate strategy. The role of CRO is becoming an indispensable position in the corporate structure.

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OVERVIEW

The following topics are covered in this ‘thought starter’:

- **Increasing importance of risk management**
- **Types of risk**
- **Process of risk management**
- **Benefits of risk management**
- **Emerging issues and trends in risk management**

IINCREASING IMPORTANCE OF RISK MANAGEMENT

Recently risk management has become more important as many companies have suffered multi-billion dollars losses, (refer table-1).

Table 1: Examples of impact of risks faced by companies in recent times

Risk	Impact – some examples
Stock market collapse	Losses suffered by P&C insurers due to stock market collapse stand at US$ 8.6 bn.
Terrorist attacks	Airlines industry suffered a total impact of US$ 12 bn as a result of Sep. 11 terrorist attacks.
Legal/financial risk due to misbehaviour of top management	Shredding of important documents by senior executive triggered consulting giant Andersen's collapse.
Country risks	Due to crisis in Argentina, seven leading international banks lost more than US$ 8.5 bn in the first quarter of 2002.
Technology risks	Losses due to virus attacks: Lovebug – US$ 8.7 bn, Code Red & Sir Cam: US$ 3.8 bn
Disruptive technology	Advent of faxes and e-mails has adversely affected the courier industry.
Increasing consumer activism/litigation	In US, a plaintiff was awarded US$ 28 bn in punitive damages against Philip Morris.
Reputation risks	Fall of Arthur Andersen due to claims of auditing frauds at Enron.

Source: Evalueserve

Companies have become increasingly vulnerable to risks for the following reasons:

The Nature of risks is changing

- The new risks faced by companies appear and materialize more quickly than anticipated and have higher probability of occurrence.
- Risks are becoming more complex due to:
  - Shift towards extended enterprise environment: As today's organizations have become more integrated and more complex, so have the risks involved with their operations. The new risks faced by companies are more intangible in nature and their impact is felt across business units and even across industries.
  - Globalisation: Economy has now become global and networked. No industry, country or institution is unaffected, which has resulted in complex interrelationships between various factors influencing an organization's business.
- Increase in 'Domino/ Ripple effect of risk' – The loss of one organisation affects many players in the market. After the revelation of the accounting irregularities by many well-respected companies (e.g. Enron, WorldCom) and their subsequent filling for bankruptcy protection, many other firms (e.g., AOL Time Warner, Dynegy, Qwest and Halliburton) came under scruntiey for their accounting, trading and business practices.
- Legal is no longer equal to legitimate – Increasingly business has to go beyond compliance to meet the expectations of stakeholders.

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Risk management not kept pace

- Myopic view of risk - Leading companies over the years have undertaken the traditional approach of “managing risks by silos” whereby different types of risks were the responsibility of different corporate and business units. This approach neglected the interdependent nature of risk across the organization, which resulted in misalignment between risk management and strategic planning.
- Lack of structure / organization to affix risk ownership - Traditionally well-defined procedures and policies (like risk-adjusted performance measurement) were not in place, which resulted in the lack of awareness of the risk management process throughout the organization. This led to a lack of “authentic” risk ownership culture in organizations.
- Lack of integrated risk management - A 2001, Economist Intelligence Unit (EIU) survey showed that only 15% of companies aggregate risks across their entire organization (55% companies do so in the financial risk category and 46% in the operational risks category).
- Missing technology for effective risk management – Due to lack of technology, full integration of risk management in the management information system was not possible earlier.
- Lack of contingency planning – Contingency planning as part of the risk management process is often missing. For example, in the Sep 11 terrorist attacks, the U.S. Securities and Exchange Commission lost material due to lack of back up facilities.

TYPES OF RISK

Risk for an organisation can be defined as 'any event or action that may adversely affect an organisation to achieve its objectives and execute its strategies'.

Classification of risks

Risks can be classified as:
- Endogenous risks vs. exogenous risks
- Organizational risks vs. market risks

Endogenous risks vs. Exogenous risks

- Risks that are not within the control of the organization and influence a large number of organizations are exogenous risks. For example, political events in Argentina led to a collapse of around US$ 141 bn of public debts and a 70% devaluation of the Peso.
- Risks that come from within the frameworks of the organization are termed as endogenous risks. For example, overshooting of budget due to unforeseen circumstances in the production of motion pictures.

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Organizational risks vs. market risks

Organizational risks

RISK	EXAMPLES	
Credit	Inability to pay ones debt	Enron, WorldCom, Global Crossing, Delphi and Kmart have gone bankrupt
Operational	Business process risks	Allied Irish's U.S. subsidiary, Allfirst Bank of Baltimore suffered US$ 750 mn in fraudulent losses.
Reputation	Risks associated with intangible assets/values of the company	Fall of Arthur Andersen due to auditing frauds at Enron.
Hazard	Accidental risks	Losses suffered by insurance sector due to Sep 11 terrorist attacks
Business	Risks associated with circumstances of a company	Iridium filed for bankruptcy as it became victim of weak sales, high operating costs and technical glitches

Source: Evalueserve

Market risks

These are the risks due to market changes including interest rate fluctuations, foreign exchange rate changes and commodity price changes.

Comparison of risk profiles across industries

Industry	Market Risk	Organizational Risk				
		Business	Operating	Credit	Hazard	Reputation
Insurance	H	M	L	H	H	H
Banking	H	M	H	H	L	H
Pharma	L	H	H	L	L	H
Energy	H	M	M	H	H	L
Chemical	L	M	H	L	H	H
Transport	L	L	M	M	H	H
Tobacco	L	H	L	L	H	H
Technology	L	H	H	H	H	M
Media	L	H	M	M	H	M

Source: Evalueserve Analysis

Key: H: High, M: Medium, L: Low

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Some examples of risks across various industries

Industry	Risks	Main Risk
Insurance	- Risks associated due to terrorist attacks - Losses incurred due to litigations - Losses incurred due to frauds - Risks associated with catastrophes and natural calamities	- Catastrophes
Banking	- Increased use of off-balance sheet activities - Liquidity problems of big clients - Risks associated with ups and downs in the economy and behaviour of borrowers - Convergence and consolidation in financial services - Lesser assurance of privacy of information due to advancements in technology	- NPAs
Pharma	- Risks involved with return on significant costs in research & development - Risks involved with manufacturing and testing of drugs - More stringent regulations and legislations - Risks involved with infringement on patents and formulae - Risks involved with deaths because of harmful side effects of drugs (e.g. deaths in US due to harmful effects of 'Lipobay')	- Regulatory
Energy	- Credit risks associated with long term energy contracts - Dual nature of demand (both short term supply and long term demand/supply) - Little correlation between short and long term pricing - Seasonal nature of the industry - Contago due to hedging by long term hedgers - Price rise due to fear on supply limitation	- Credit
Chemical	- Potential risks from terrorist attacks on chemical plants - Risk in transportation of hazardous chemicals - Potential environmental impact and pollution from use of chemicals - Potential risks arising from Bio-terrorism	- Environmental
Transport	- Losses incurred due to injury to passengers or third party - Third party property damage - Loss or damage to freight - Losses incurred due to contractual liability - Clean up cost following toxic spills or damage to freight - Repercussions due to terrorist activities (losses suffered by the airline industry)	- Accidents
Tobacco	- Concern over diseases caused by smoking - Deaths from fire caused from burning cigarettes - Goal of health ministries all over the world to reduce tobacco consumption - Increasing tax on tobacco producers - Stringent regulations - Lawsuits against tobacco producers	- Litigations
Technology	- Risk of obsolence of existing technology - Protection of intellectual property	- Obsolence
Media	- Expensive production and distribution of motion pictures - Cancellation and delays due to extraneous factors - Convergence of technology leading to new concepts in media industry - Intellectual property management (including risks related to piracy) - Overshooting of budget due to unforeseen circumstances	- Piracy

Comparison of risk profiles across types of companies

Multinationals
The specific risks faced by multinational companies include:
- Cultural issues
- Country specific risks
- Currency risks
- Risks arising due to political instability
- Employee-related risks
- Terrorism and Sabotage risk
- Sudden changes in regulations
- Unforeseen competition
- Strategic risks
- Maintaining corporate identity
- Effective corporate governance

Mature nationals
The risks for mature nationals to a large extent are dependent on the changes in the domestic operating environment. The specific risks faced by matured nationals include:
- Inflation risk
- Price regulation
- New competitors/substitutes
- Changes in the political/economical environment of adjacent countries, especially for small countries such as Switzerland

Small & Medium size Enterprises
The specific risks faced by SMEs include:
- Changes in regulations due to the integration of international markets
- Managing internal growth
- Increased use of new technologies
- Loss of key personnel
- Risk from insufficient insurance
- Risk from transfer of ownership to a descendent

PROCESS OF RISK MANAGEMENT

Evolution of risk management

Risk management has been practiced for thousands of years. However, risk management as a field has emerged quite recently (around the1960's). The disastrous 1953 floods in the Netherlands catalysed the developments in the field of modern risk management, where for the first time 'scientific' risk analysis was performed by applying statistical techniques and hydraulic models along with the methodologies developed in decision theory and operational research, to establish engineering guidelines for dike heights. Earlier engineers used the historically highest water level as the primary guideline for dike heights.

Before 1970, risks were limited to a large extent to "pure risks" as the interest rates were stable, foreign exchange rates were internationally managed within narrow bands, and inflation was not yet a concern to most corporations. Since then environment has changed considerably and whith it risk management approaches (refer figure 1).

Source: "Limitations of Knowledge Management", EVS Analysis

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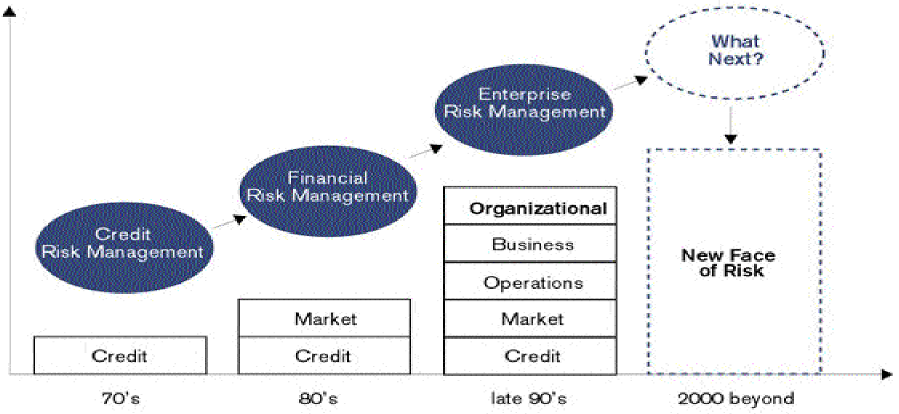
Figure 1: Evolution of industry practices

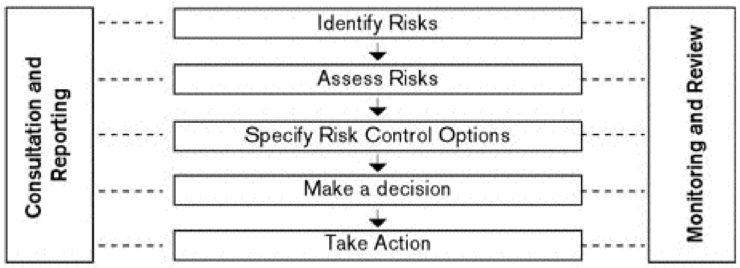


Source: ERisks and Evalueserve Analysis

Risk management framework

The objective of risk management is to manage risks effectively and efficiently, which involves tradeoffs between risks, benefits, and costs. To achieve this objective in the current dynamic environment, one needs to have a continuous, dynamic risk management process, tailored for each organization. A generic framework explaining the risk management process steps is shown in the following figure.

Figure 2: Risk management process steps



Source: IALA Guidelines On Risk Management

Tools for risk management

Companies use a wide range of financial matrices to support their risk management programs. Some of the most commonly used financial matrices are:

- Earnings-at-risk
- Value-at-risk
- Industry benchmarks
- Internal performance benchmarks

Apart from measuring financial performance, companies are increasingly using wide range of tools to measure – quality management, customers and investors satisfaction, employee loyalty etc., as part of their risk management process.

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Risks are analysed using quantitative and qualitative techniques.

- Quantitative Techniques such as risk and time series analysis, Monte Carlo simulation and extreme risk modelling, are used to analyse financial, credit and hazard risks.
- Qualitative Techniques such as scenario building, best guesses, probability impact matrix and consensus views on risk estimates are used to analyse intangible risks.

Roles in risk management

Regulators, top management, organization structure, technology, and stakeholders are all part of the operating environment of an organization and play an important role in the management of risk.

Regulators

The regulation of business and corporate risk management are inextricably related. Demands on government to regulate the changing nature of risks are increasing, e.g. catastrophic pollution of the Rhine river in 1986 due to a fire in Schweizerhalle near Basel, resulted in political pressure to improve provisions on protection against damage resulting from major accidents. As a result, the ordinance on “Protection against major accidents” (OMA, 1991) came into force on April 1, 1991.

Recent regulatory reforms have encouraged firms to take a more formal and holistic approach to their risk management. These reforms call for setting up of risk management controls that are deeply rooted within enterprises, examples include:

- Banking sector regulations outlined in the Basel Accord.
- Corporate governance reform initiatives taken during the 1990s in countries such as the UK, Germany, Canada and elsewhere.

Regulators are giving a clear message to the boards and senior executives that they cannot evade responsibility for poor risk management, e.g.

- Securities and Exchange Commission has proposed rules that would require a company's principal executive officer and principal financial officer to certify the contents of the company's quarterly and annual reports.

Top management

In general, the concept of risk has moved from the back room to the boardroom. Risk assessment and monitoring are now built into the corporate structure and the real driver is no less than the CEO himself.

The results of a recent PwC research report on risk management from among 70 companies, in 7 countries and cutting across 10 industries showed the following:

- Boards are increasingly clear that risk management is a corporate governance issue.
- Audit Committees continue to expand risk management awareness at the board level.
- Board member participation in different companies and industries is furthering the spread of risk management awareness.
- Boards' willingness to replace senior management provides evidence of their increased role.

Organization structure

An effective risk management process should provide clarity of risk ownership and accountability for risk management throughout the organization. The following examples show how organizational structure can play an important role in risk management:

- Developing a risk ownership culture and risk-adjusted performance measurement practices.
- Creation of enterprise risk management committees, through the appointment of Chief Risk Officer (CRO).

Technology
Technology acts as an enabler in implementing ERM in organisations in the following ways:

- Early warning system: can utilize key risk indicators to identify and track potential risks in the entire spectrum of risks rather than more traditional analysis and extrapolations of historical and actuarial data.
- ERM intranet: can serve as the primary risk management reference resource and risk communications vehicle.
- ERM database: can be used as a source of risk-based data for modelling, decision-making, treatment portfolio optimisation and reporting purposes.
- Modelling: can help in better understanding the range of interrelated risks that have an impact upon business today. Developments in modelling techniques such as extreme risk analysis will help in better assessment of risks. Further, complexity and stochastic modelling can be used to stimulate risk manifestations in millions of scenarios across the value chain, resulting in greater risk awareness of potential areas to focus treatment activity.
- Web-enabled risk management process: can help in decentralised risk management and off-site risk monitoring.

Stakeholders
In the wake of accounting scandals and corporate misbehaviour, the investors and stakeholders want transparency in business practices and disclosure of risk management information by the organizations. Many companies are now realising this and are disclosing more about their risks and how they manage them than is required by the regulatory norms. This is acting as an important driver for companies to have better risk management practices in place.

BENEFITS OF RISK MANAGEMENT

Benefits of risk management can be broadly summarized as follows:

1. Improved probability of achieving the company's objectives through early adaptations and better knowledge.
2. To gain knowledge on where to invest to mitigate future risks.
3. Improved financial and operating management.
4. More comprehensive assessment of risks and planning options.
5. Fewer BIG surprises and better contingency planning.
6. "Ownership" of risks and their causes is established, so that they are effectively monitored and proactively managed.
7. Builds trust through sharing analysis and process with partners.
8. Enhanced public, stakeholder understanding of trade-offs and confidence in organization's process.

EMERGING ISSUES AND TRENDS IN RISK MANAGEMENT.

Issues

1. Non-traditional risk pose the greatest threat
Customer loyalty, competitive threats and operational failure are among the biggest risks faced by companies.

2. Available quantification methods are inadequate for measuring intangible risks
According to an EIU survey, inability to measure intangible risk is the single greatest obstacle to ERM, with 53% of the respondents identifying this as a major problem.

3. Increased pressures from shareholders and investors
Shareholders and investors are increasingly seeking a balanced report on the hard numbers and the "intangibles" that will protect and create value in the future.

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Trends

1. Emerging role of Chief Risk Officer
More than 80 major corporations have already appointed Chief Risk Officers (CRO) . The role of CRO is expected to gain a foothold and become an indispensable position in the corporate structure.

2. Emergence of risk management as a tool for performance rather than conformance
Organizations that have adopted a risk management approach have experienced significant tangible benefits, including increases in shareholder value and reductions in losses and earnings volatility, which has made top management realise the importance of risk management.

3. Risk management becoming as important to a non-financial organization, as it has traditionally been for the financial world
ERM is being adopted by a wide range of industries ranging from automotive to property development.

4. ERM being adopted widely
According to an EIU survey, 41% of companies are adopting some form of ERM. European companies are leading the race with 53% of companies using some form of ERM as compared with 34% of North American companies and 33% of Asian companies.

5. Full integration of ERM within the organisation's MIS
Companies are realizing the importance of an effective information system to capture and communicate all the relevant information required to take critical business decisions, in a timely manner. This has resulted in ERM becoming an integral part of the organization's information systems.

Next mega risks

Some of the big risks that corporations and the world as a whole could face in the near future are the following:

1. Changing demographics in developed nations (especially in Europe and North America) could result in problems such as:
   a. Shortage of labour.
   b. Collapse of pensions systems.
2. Environmental impact due to dependence on fossil fuels, e.g. more natural disasters (hurricane, floods).
3. The ripple effects of environmental changes could result in increased prevalence / incidence of certain diseases (e.g., more than 1 mn cases of skin cancers are expected to be diagnosed in 2002 , which could have been prevented by protection against UV radiation).
4. Consumer activation against hazards of new technology, e.g. mobile phones, genetic food.
5. Migration of workers from developing nations to developed nations could lead to:
   - Loss of intellectual resources from developing countries
   - Increased burden on the resources of developed countries.
6. Culture based conflicts (e.g., Palestine, Iraq, Bali) could result in formation of ethnically fragmented world with conflicting interests. This in turn could affect the pace of globalisation.

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White Paper

White Paper

Managing Risk When The Constant Is Change

Summary and Results

Introduction

No pain, no gain. No risk, no fun. There is always a certain truth in such old proverbs, but then again, if you look at the risks we are facing today as individuals and businesses: Argentina and Iraq, global warming and SARS, Andersen and WorldCom, Bin Laden and Bush, you ask yourself: Whatever happened to the fun part?

You know what happened: The world is a system. This system was for a very long time quite stable. Of course, there were always times and places that were more hectic and confusing than others, but with few exceptions the dynamics had geographical and chronological limits. Not any more. The world is growing together. The density of our global network is immense. The system, the world we live in, has reached a level of complexity and dynamics that are impossible to overlook or even manage. Hence, success and failure, risks and opportunities are growing exponentially. On one hand, risk management is today's necessity as the possible consequences of risks are more dramatic than in the past. On the other hand, due to the nature of today's risks, its management is more difficult then ever. Furthermore, managing risk is no longer simply a matter for mathematicians, asset managers and gamblers. Dave Packard once said: "Marketing is too important to be left to the marketing department." The same goes for risk management. It's not simply an issue for the Chief Risk Officer; it should be everybody's concern in an enterprise.

But if we want to get everyone involved, there is one big misunderstanding which first must be clarified: Risk management does not mean risk avoidance. Risk management is the attempt to find the right balance between risks, benefits and costs.

As risks evolved, so did the approaches and techniques of risk management (for further details see the Thought Starter). Today, many cutting edge enterprises have implemented a so-called Enterprise-wide Risk Management (EWRM). James W. DeLoach, describes a benchmark company in his recent publication "Enterprise-wide Risk Management":

> "The Company requires its business units to adopt uniform processes for the identification and management of risks. Its trading operations, though vast, are conducted within an environment and culture featuring stringent and sophisticated controls. The Company aggregates and redistributes its business, financial and other risks to those units most competent in a given risk area through a process it refers to those units most competent in a given risk area through a process it refers to as "syndication". The Company uses an internal "underwriting" team to work with business managers to fully evaluate and understand the risk of new projects. Capital allocations require full board approval and are evaluated based on probabilistic RAROC (risk adjusted return on capital) analyses. …
> The Board is fully-briefed on the group's risks, and consequently, the Company is able to move quickly on opportunities that would be cause for trepidation in less sophisticated organizations."

The Chief Risk Officer of a company is quoted, saying: “The culture here is that if you take a trading risk and don’t let us know about it beforehand, or if you willfully violate policies, even if you make money, you’re fired. We take risks to generate profits, but we never bet the farm.”

Wow! Do you feel inferior now about your company not having all or at least some of those practices realized? Don’t! The company described is (or better: was) Enron.

Nevertheless, wondering at the irony cannot prevent you from seriously thinking about future risks and possible means and measures to manage them. And that’s what we did.

Definitions

We asked a few of the Thought Leaders about their personal definition of risk. Not surprising, there was a wide variety of definitions. After all, risk is not a new issue and modern risk management, as we know it, had its origin in the fifties in the Netherlands with the setting of the heights for the dykes. At first sight, it looks like the variety of definitions would jeopardize the attempt to address the big risks of the future and the necessary actions to better manage them, which was the goal of the Thought Leadership Forum. But on the other hand, the diversity of perspectives helps to better understand future risks. If you solely focus on your own risks – even if you have a broad perspective, looking not simply at credit and market risks but also at operational, organizational or “reputational” risks, you still might miss a few. Those risks may include the chances of your competitors or industries replacing your business model one day.

One Chief Risk Officer also pointed out the lack of a common definition: “It is an ongoing issue in insurance and banking. To some people risk is an opportunity, for some a threat.” Nevertheless his definition was simple: “the mathematical expectation of loss”. Also straightforward was this description “the chance of something going wrong”. Of course some went into more depth. Another risk manager said: “A certain outcome of an action. Actions, which can only have a negative outcome, for instance credit risks: you expect money which you might get or not, but you never get more than you expect. Or actions, which might have a positive outcome too, such as market risks: the return might be higher than you expect.” Finally one expert linked the risk issue to a company’s objectives “Objectives must be known, otherwise the associated risks cannot be understood. Risk is anything which can impact our ability to reach our objectives.”

As the Thought Leaders represent a wide range of institutions and therefore pursue a variety of objectives, the top risks addressed during the Thought Session were, with a few exceptions, exogenous risks; risks that are not within the control of a single institution or company and influence a large number of organizations.

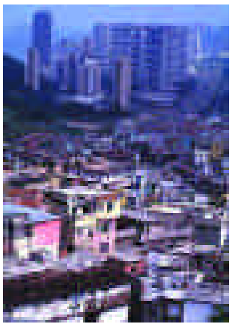
The Risks

Due to today’s interdependence and interaction it is almost impossible to strictly separate one risk from another. Therefore, we asked the Thought Leaders to identify the top risks from different perspectives, such as societal risks as well as public, financial and industry sectors risks. All those risks were merged and rated in order to identify the most relevant list. The risks are here presented in the order that the Thought Leaders agreed on.

Risk no.1: Patient Planet

The usage of energy is still increasing and so is pollution. Although some serious attempts were made to reduce pollution, it is still on the rise triggering a range of risks. Global warming and climate change have been held responsible for some of the largest natural disasters in the recent past. The scarcity of natural resources is a growing factor in world politics. While some see the recent invasion of Iraq as one led by oil interests (although we admit that this reasoning might be questionable) many believe that an even bigger issue is coming up: water. There are other natural resources that won't necessarily last forever. Although there is still a scientific discussion going on about the impact and effects of human behavior on nature, it would be negligent not to pay attention to those changes. Just consider the fact that the vast majority of this planet's population still does not own a car or a refrigerator - but want one badly.

However, two factors make it hard to keep the environmental issues in the center of the public attention (which of course makes them even riskier). First of all, past prognosis about the end of oil supply, the death of forests or other major environmental problems have not fulfilled their worst case expectations, at least to a certain extent. Nature and man's inventiveness have proven to be quite resistant and resilient. But as always, the past is no guarantee for the future. Second, environmental problems have made news since the oil crisis in the early seventies. People are cynical or bored with the questions, at least to the issue. The reason why we haven't completely forgotten about it, is the fact that we constantly come up with new environmental problems (such as "Electro-smog") or discover hidden problems from the past (Asbestosis). A very dangerous trap, do we really have to create new problems in order not to forget about the existing ones? We hope not. (See also Risk no. 5: Health Hazards).



Risk No. 2: Demographic Demon

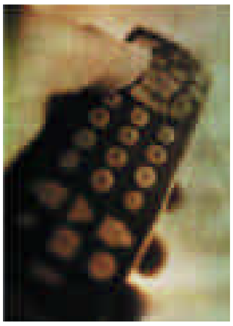
We, as a society, especially in Switzerland are getting older. Too old. While the working-force is getting smaller, the pensioner power grows. The impact on pension funds and other social systems will be huge. Fewer people will work, and in addition they will have to support a growing number of retired people. Taxes and salary deductions must rise in order to cover the pension entitlements, social services and medical treatments for the elderly. Of course, there is another possibility: you might cut down services and payments. But this will be difficult, don't forget: the senior citizens will have the majority! The higher deductions will further decrease the motivation to work. A vicious circle, which is sped up by a second demographic change: The family, a social institution which traditionally played an important role in taking care of its older members, is losing its importance.

The shrinking workforce carries another risk for many institutions: the war for talents (wars are always risky business!) and the drive to encourage immigration. If fewer people are available and ever less motivated to work, a company will have to make some serious attempts to get and keep a decent workforce. (See also Risk No. 3: Polarizing Politics and Risk No. 5: Sick society)

White Paper

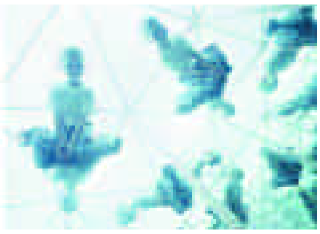
Risk No. 3: Polarizing Politics

The current global situation sees increasing and unstable political environments with two opposing trends. On one hand, there is drift towards an American dominated worldwide monoculture. On the other hand, it seems that societal gaps are growing in numbers as well as in size, gaps such as in culture, divergent religion or wealth. Both trends bear a potential for conflicts or if you want the short formula: “McDonaldization” plus “Brazilianization” equals “Balkanization”. In addition, it seems the present speed of change, and we see no sign of a slowdown, is simply too fast for large parts of our society, causing even further tensions. The western world is trying hard to keep its stability by trying to isolate other parts of the world. We try to reduce the risks that come from so-called borderline countries with a sophisticated mix of moves, actions and aid (See also Claudio Ciborra, “Keynote Speech”). But 9/11 showed in a very dramatic and tragic way that these strategies do not necessarily work. (See also Risk No. 2: Demographic Demon, and, Risk No. 4: Reckless Regulation)



Risk No. 4: Reckless Regulation

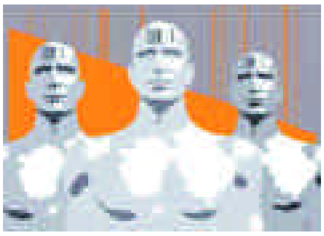
A few scams, scamps and scandals and everyone seems to be willing to put tons of new rules and regulations into practice – hoping to reduce the risk of future Enrons, WorldComs, Swissairs, Aholds and others. It won’t work. While it still takes a long time to pass a new law, it takes about two minutes for a creative crook to find a way to circumvent it. But even without the recent reactive directives, the density of national, international and global legal systems has grown over the past decades to an enormous extent. There is a certain irony here: It looks like an important tool to prevent society from chaos has become chaotic itself. A control mechanism out of control. In addition many national and international economies still protect their industries despite the efforts towards free markets. The typical risky consequences of over-regulation and over-protection are well known from the past: organized crime, black markets and corruption.
(See also Risk No. 3: Polarizing Politics)



Risk No. 5: Sick Society

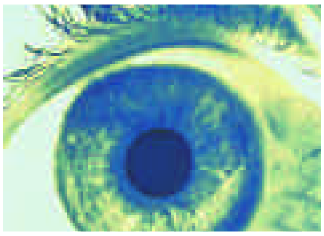
Human kind fought and won many battles against once dangerous diseases. Nevertheless, health issues still belong to the top risks for several reasons. First of all due to the extensive use of antibiotics, many pathogens have become resistant and the treatment of illnesses caused by those pathogens becomes ever harder. Second, diseases spread faster because of growing urban areas, increasing global traffic and global networks of people. As I am writing this white paper, the Severe Acute Respiratory Syndrome (SARS) is making headlines. This new aggressive form of pneumonia started somewhere in China, spread throughout South East Asia in February of this year and reached North America and Europe by March.

Further, the concept of health has changed dramatically in Western Society. While historically it meant “not being sick”, it is today rather, a state of being fully capable to deliver whatever is expected at work AND leisure. The public opinion is shifting towards: Health is feasible and therefore if you’re sick, it’s your fault. It is impossible to say whether the recent developments in lifestyle drugs, genomics, cloning and so on are drivers or consequences of this development. In any case, there are two major problems coming from this development. One, if we continue to include more treatments into regular health insurances, the funding crisis will become even tighter and two, another societal gap will arise – between healthy and ill people. “Healthy”, considered in the new context, also includes attributes like happiness, good looks, fertility and vitality. The gap will be more or less the same as the one between rich and poor and will therefore raise social tensions even more. (See Risk No. 2 Demographic Demon and No. 9: Chancy Centralization)



Risk No. 6: Seismic Systems

In order to make globalization work we tend to install worldwide standardized systems. There is a trend towards standardization and uniformities. The risk is obvious; just think about the “I love you”-Virus. Within a few hours or days it caused huge damage and years later, it is still among the top 10 viruses. And it doesn’t have to be a bad guy causing such an incident. Remember the Y2K problem. Thousands were hiding in bunkers, and probably even more people made cash withdrawal on the eve of New Year fearing the bank records would be gone the next day. They didn’t (at least mine) but be prepared for more episodes like this. (See Risk No. 8: Dangerous Dominos and Risk No. 10: Imperil ICT)



Risk No 7: Human Hazards

Unfortunately, humans are not as rational as we hope or expect them to be. Not as individuals and not as a group. Most, if not all risks and actions described here have human origins. So as the chances of humans drastically changing their behavior is rather limited, humanity will remain a top risk to itself and everything that surrounds it. No further explanations are needed here. (See all other Risks)

Risk No.8: Dangerous Dominos

This risk can best be described with the famous Mani Matter song: “Ich han äs Zundhölzli aazünt…” The song is about a guy lighting a match and thinking what would happen if the match accidentally falls to the floor: first the carpet catches fire, then the house, the neighborhood and finally the city. Fire fighters can’t handle it anymore and the army comes to help. The large military movements cause a crisis, and eventually a world war.

The world is moving together, the economy is global and networked and the environment of enterprises extends. So as the system is getting more complex, hidden feedback loops and non-linear ripple effects tend to become the rule and not the exception making it very difficult to calculate risks and estimate potential damages. Rather, who would expect that a global company like Andersen comes to an end, because of one team operating on the other side of the legal boundaries. (See Risk No. 6: Seismic Systems, Risk No. 9: Chancy Centralization)

Risk No. 9: Chancy Centralization

The trend towards centralization covers many facets in our society. Globalization led us to think the city would decrease in importance, when actually just the opposite happened. The migration from rural towards urban areas makes cities ever bigger (even within cities everybody is trying to make it to the center). But also economic and political organizations are becoming more centralized. The symbols for this trend are the buildings and headquarters that are getting taller and more pompous. The chilling underlying risk is the increased vulnerability of centers of all kinds - dramatically shown to everyone by 9/11. The fact that Daniel Libeskind's winning project for Ground Zero is even bigger than the old twin towers, leads to the conclusion that the desire to be in the middle of everything, combined with a big-is-beautiful attitude is still stronger than certain risk awareness. (See Risk No. 6: Seismic Systems, Risk No. 8: Dangerous Dominos)

Risk No. 10: Imperil ICT

We are living in the Information Society and the main tool to handle the information is technology. But the growing dependence on technology bears a number of risks. Security is a big issue. The personal security of individuals as they lose their privacy, as well as the security of organizations facing all kinds of hacks and misuse of their systems and data. Every user has experienced the loss of memory (I better save this document now). But just imagine the possible damage if a large group of people or a whole organization would lose their memory. And losing memory could just be a result of changing technology (remember truly floppy disks?).

It also seems that the mass of information is slowly but surely replacing good judgment. To some people, technology has a nearly religious character. They believe in it. But through their faith they will lose the flexibility needed to strive and survive in a fast changing world. No computer model, for instance, was capable of forecasting the floods that took place in August 2002 in Germany but many people knowing those rivers were able to tell what was going to happen. Actually, a similar development can be observed in the field of risk management. (See also Keynote by Claudio Ciborra). (See Risk No. 6: Seismic Systems)

The Measures

We can’t change the world and we can’t avoid risks but we can minimize, prepare and manage at least some of them. Our Thought Leader came up with a wide range of ideas. We ordered them into three categories: Regulatory means, which could be installed pretty quickly but might not last in the long run (see also Risk No. 4: Reckless Regulation). Incentives, as the second group of actions, could have a medium range impact and finally education, which should last on a long-term basis.

Directives

The Thought Leaders were divided on this issue. On one hand, many of the proposed steps make sense but on the other hand, some fear the impact of over-regulation. Furthermore, it doesn’t look like many of the ideas will easily find the necessary majorities in public and parliaments. However, some propositions also include the reduction of certain regulatory frameworks.

Higher petroleum prices through higher taxes would reduce its usage. Tax reforms that foster the taxation of energy usage and pollution (“Öko-Steuer”) instead of labor, income and property are a more sophisticated way to reduce environmental risks. Full cost accounting could be another method with a similar result.

A new pension system and open borders will probably be needed in order to lessen demographic risks and close some societal gaps. In a similar direction the proposition of renovating intellectual property laws (for instance to drive the production and usage of generic drugs in order to decrease health costs). Laws on the collection, storage and usage of information and data are another legal field that is not yet mature.

However, as the economy is global, so are the risks. Politics and laws are still dominated by national interests (regional at best). Therefore international institutions, organizations and agreements must be strengthened or put in place in order to have substantial impact.

Incentives

Incentives are a form of regulation too. But they are based on rewards rather than on punishment and were therefore strongly favored over regulation by most Thought Leaders. It is clear that incentives are also driven by companies and markets. A few Thought Leaders believed that incentives alone will not do the job and must therefore be accompanied by legal directives. Finding the right incentives seems not as much of a problem as really making them work in Practice. Nevertheless, the ones rated as most important are listed below.
Incentives for healthier living were rated high and are partly in place today. Some health insurance policies, for example, contribute to prevention activities of their members. Yet more encouragement is certainly possible. Markets are already rewarding companies with good corporate citizenship records. Considering the surplus of products and services accompanied by a flood of information, one could be optimistic hoping that other arguments, like minimizing and/or controlling the risks which are a burden to society by companies, will become much more important to consumers when taking a buying decision.

Education

By far the greatest number of discussed actions can be summarized under the term of education. The variety of means, topics and contents is wide. However, in order to really achieve changes that last, education, in different forms and on different levels, is essential.

Children should learn more about health issues and nutrition. An incredibly large amount of tacit knowledge has disappeared in the past decades. Most people have no sense about when a certain fruit or vegetable is in season and how it should be prepared. Bad nutrition and poor eating habits are causing a whole range of diseases of modern civilization. The resulting costs are enormous. Bringing back cooking classes in primary school (for both genders!) would certainly reduce the cost of our “Sick Society” (Risk No. 5). And if children would also learn more about environmental matters and foreign culture, even more risk would be diminished.

Education and learning never stops. In the context of risk management it means that first the quality of management needs continuous improvement. We also said in the beginning that risk management, or at least awareness, is of everybody’s concern within an institution. Not only managers have to be focussed on risk issues, but also the employees at all levels.

Still, learning is also a topic for organizations, not only for individuals. The establishment of an ongoing risk dialogue between companies and all of their stakeholders, is thus needed to increase risk awareness on both sides of a company’s border.

Moreover, the Thought Leaders developed some ideas for improvement on an international level: First collect global “Best Practice” (i.e. in risk management, healthcare, agricultural and industrial productivity, knowledge sharing, education and so on). Then share and communicate the results and experiences and adapt the findings to the local environment. Finally, experiment, improve and inform global “Best Pratices”.

A Final Word

Life is risky. Nothing is guaranteed (except for death and taxes). Yet those companies that are more skilled in balancing risks, costs and benefits can certainly enjoy a competitive advantage. Shell, for instance, was better prepared for the oil crisis in the early seventies through scenario planning than other oil companies. The result: In 1971 Shell’s profit margin ranked number 7 among the “Seven Sisters” (BP, Chevron, Exxon, Mobil, Shell, Texaco and Gulf), in 1975 it was number one…

But no matter how many tools and instruments, you have to calculate and control risks. No matter how many risk officers you hire, no matter how well you regulate, motivate or educate, the unforeseeable is just around the corner and it can always catch you on the wrong foot.

To illustrate this, we would like to give the last word to one of the Thought Leaders, a Chief Risk Officer of a large financial service company: “The biggest risk for our corporation is not war, natural disaster or market collapse, it’s our board and our top management!”

Written Samuel Dubno (GDI)
with contributions from Susan Kish (First Tuesday Zurich) and many thanks to the Thought Leaders of November 26th 2002.

Keynote

"The Duality of Risk"

Claudio Ciborra, Professor, London School of Economics

Meine Damen und Herren, es ist mir klar, dass die deutsche Sprache und Schwiizerdütsch nicht die offizielle Sprache dieses Anlasses ist. Es tut mir sehr leid, dass ich in diesem Fall auf Englisch weitersprechen werde!

I understand I am here to fill two gaps: The first one is to allow Susan and her team to compute all the rankings and the second gap is to fill the time until the Manchester – Basel match starts. Being Italian I think I'll support Basel. This is what the Latins call a "captatio benevolentiae".

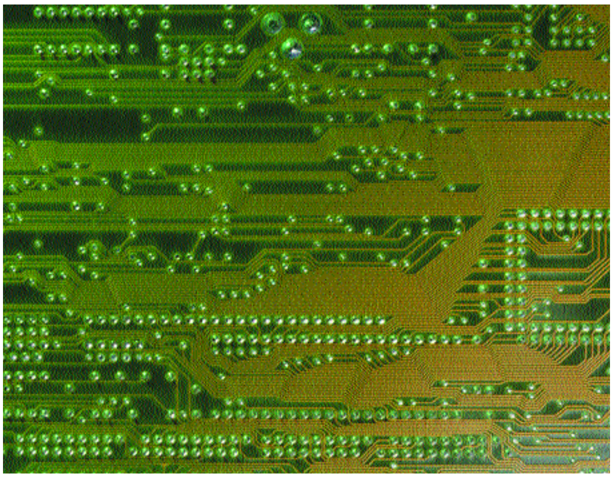
In any case, I would like to address the issue of risk and the nature of change. I think we can all learn something about the theories of change in addressing the issues of risk. I have called this talk the "Duality of Risk" because I want to point out at least two different perspectives on risk and two different perspectives on how we manage change. Why do we need to compare different perspectives? Why are we discussing the issue of change and risk management? Because there are very well known events, very well known stories, and very well known puzzles that are beginning to confront us more and more often. To begin with, I would like to discuss three images and their related questions: "Are we managing risk in the correct way?" "Are the existing conceptions of risk appropriate?" "Should we be investigating new ways in dealing with risks?" "Are we doing the correct things when we manage risk?"

The images cover three individual areas:

01 information technology, which is my field of origin
02 insurance
03 globalization and water, international agencies and developing countries, governments and their actions in globalization and water

Keynote

01. Let's start with a current hot topic, information technology.



Looking at what big corporations are doing in diverse industrial sectors, and also what governments are doing, we note that there is a trend away from putting staff in the field of information systems towards dealing with so called corporate information infrastructures. And this difference is not just a nominal difference between systems and infrastructures. This difference of terminology points to some underlying phenoma and puzzles which are emerging as we manage these infrastructures and systems. Systems, after all, although complex and new, have some sort of a limit. They are closed objects and as you design and plan them, you align them with the corporate strategy. They had a set of identifiable impacts. During the accumulation over time of information systems with different components, both hard- and software, actual systems become more and more important. They become the underlying layer of any kind of business. They become the underlying infrastructure. But, if we begin to see the information technology in organizations and across organizations as an infrastructure, like the old industrial age infrastructures such as railways, airports, etc. which do not always function very well and through which I navigated to come here, if we look at these information technologies as infrastructures, then we begin to see some of their darker sides.

> **"He said these systems are like concrete: when you stir them they are flexible but when you stop stirring them they become concrete and rigid so that change is then very difficult."**

First, the term infrastructure means that these resources are shared, and that there must be standards in order to share them. But there is not only one standard, there are many. These standards and resources are also continuously evolving. The infrastructures have no boundaries. They are open, they are standardized but at the same time they are heterogeneous. They have these powerful aspects of showing what is called an installed base, or what in technical jargon is called legacy systems. In other words, infrastructures grow, but only through layers upon layers, and you have to take into account that every infrastructure is connected to a previously existing infrastructure. The point is that the installed base has inertia and inertia is slow to change and to move.

So whenever you invest in SAP Systems you are conditioning your future, because you are creating an installed base that might be difficult to change if you need to change your business or your strategy. And if you look at the implementation of these infrastructures in real life, you observe

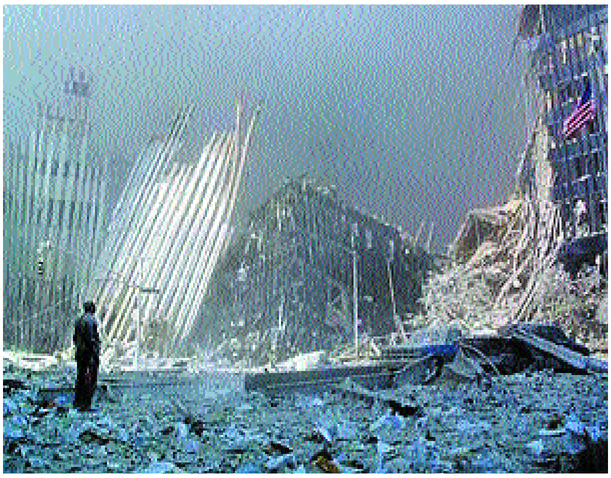
Keynote

> **"You introduce totally integrated systems, but then, in order to adapt them to local conditions, you introduce a sort of "Frankenstein". This "Frankenstein" is made up of your infrastructure and knowledge. And then it is not even a fragmented "Frankenstein", it is an integrated "Frankenstein".**

strange phenomena. As you introduce new infrastructure in order to integrate your business, it actually turns out that the infrastructure is newly fragmented. You introduce totally integrated systems, but then, in order to adapt them to local conditions, you introduce a sort of "Frankenstein". This "Frankenstein" is made up of your infrastructure and knowledge. And then it is not even a fragmented "Frankenstein", it is an integrated "Frankenstein". People promoting these infrastructures, promise that they are flexible, that you can adapt and change the parameters to adapt to new business circumstances. However, the manager we interviewed in a Norwegian company had a very nice comparison: He said these systems are like concrete: when you stir them they are flexible but when you stop stirring them they become concrete and rigid so that change is then very difficult.

What is the underlying malaise of these information infrastructures? Yes, they are standardized, they are heterogeneous and they integrate our business. But at the same time they leave us, if not today then when we look into the future, with a sort of sense of loss of control. And that is strange because, after all, we introduced this information technology to increase our control.

02. Let's take a look at how the area of insurance works.



The events of September 11th have shown up a lot of problems which major insurance companies are now struggling with. The first problem is that the old definition of the function of insurance that worked so well in the past does not hold true anymore. Insurance used to be defined as the smoothing and distribution of the consequences of rare and damaging events and shifting the risk to a repository of funds. This repository in turn needs to be replenished by insurance premiums, and needs to be managed by a careful investment strategy.

Keynote

> **"The same event brings along a significant increase in claims and at the same time, reduces the value of the insurance investments which were intended to cover these claims."**

In general, both terms of the equation, the exposure to risk and the repository to face these risks need to be managed and kept in balance. What the events of September 11th have shown, is that there is an unexpected correlation between liability and assets facing this particular liability. September 11th has shown a sort of downward spiral effect linking both sides. The same event brings along a significant increase in claims and at the same time, reduces the value of the insurance investments which were intended to cover these claims. A second aspect that has affected the insurance world is that, thanks to globalization and the media, there is an incredible instantaneous reaction to the events that bring along a qualitative change in the perception and the economic reality of risk. Both have suddenly become much higher. They pose a challenge to the way insurance companies will do business in the future. Insurance companies are facing multiple puzzles, such as what constitutes insurability and where are the limits of insurance companies. They are trying to address the problem by defining a new role for insurance companies; namely not to passively react to hazards and dangerous events once they have occurred, but to become a force that can influence the social and political processes so that governments can implement pre-emptive strategies in risk prevention. Perhaps insurance firms will become global institutional suppliers of security. These questions underline the context of what experts call a new war. And this leads me to the third image:

03. What are we doing with globalization and development?

Some people talk about the problem that, thanks to international networks, states are losing importance. But, if you look at what is happening in the world and how these international agencies are acting and how states are acting in this new environmental war, one can see that metropolitan states, the rich states in the West, are extremely active. They are trying to minimize the risks that come from so called borderline states through a very complex mix of moves and actions, if not indeed even in the old colonial way by bringing in troops or applying pressure to administrations directly, thereby more often than not disregarding the sovereignty of these states. Ranging from NGO's to the UN, these international agencies such as the World Bank and the International Monetary Fund are also even promoting applications of the e-Government with information technology in these developing countries. Everything is aimed at trying to minimize the risks that come from these borderline countries, to prevent them from directly attacking the metropolitan states. Looking at reports coming in from the UN and other agencies there is a malaise even in this field of endeavour. I mean, these moves are quite sophisticated and quite articulate but there is a suspicion that risks are not being minimized after all or that new risks are actually being created. I was recently studying new IT policies in a developing country, Jordan, which is an enthusiastic supporter, at least the King of Jordan and the government, of the application of information technology, in order to launch Jordan as the Singapore or the Bangalore of the Middle East. And a lot of international aid is brought in, but you see that the reality, the agenda, is another one: it is how to control this state at a distance. This can place the borderline state in a very dangerous situation. And it is not clear whether all these strategies, this aid, this enthusiasm towards progress actually works.

So we live in an age where we do a lot of things in terms of innovation and in terms of increasing control over resources and people. And we are occasionally successful at minimizing risks, but at the same time we have the feeling that some things are eluding us. This is a funny feeling because the more we perceive to be losing control over things, the more we freak out, the more we want to manage and minimize risks even further, thus creating a spiral of which the end is very unclear.

"[…] the more competent we become in incremental change the less effective we are at radical change. We tend to repeat, we tend to do what we know best."

Here, I believe, we can learn from the theories of change since we recognize that risk is connected to the fact that we live in a time of change. Now if we look at change and how we cope with change very schematically, there are two approaches: one is the incremental approach which is the improvement of what we know how to do already, the thermostat approach: Being able to control the resources and the processes in a way of constant improvement. Now this is fine most of the time, but in the times we are living in, this strategy of control and of minimizing risk, this strategy of eliminating disturbances and noise maybe is not enough. There have been dramatic events, there have been unexpected events that require radical change. And of course we say, okay, let's go for radical change but there is a catch: the more experienced we become at what the changing learning theories tell us, the more competent we become in incremental change the less effective we are at radical change. We tend to repeat, we tend to do what we know best. We fear to engage in new behaviours because as soon as we explore new behaviours, we get into experimentation. Of course our performance will then degrade by definition because we are trying something we do not know. Now this fear of the new actually keeps us doing what we already know. I believe most of the tactics of management in general, and risk management specifically, are based on these first order controls, on the thermostat model.

"And not only are we creating a risk society with all our actions and increasing actions of controlling risk according to this simple control system mode, we are also creating a world which is less and less in control. We are creating what they call a "run-away-world"."

Keynote

We have a disturbance in a developing country, in a data management issue and then we apply a certain control system. We get the feedback, we reduce the noise. Now I think we should realize that this strategy may just be an industrial age strategy which does not work anymore. Every control action we perform of a first order kind, we are beginning to realize, creates side effects, creates unexpected consequences. That there is a risk in the actions of managing risks, which always come as a surprise.

We use information technology to integrate our business, to reduce the risk of fragmentation of dataflow and what we have is an integrated structure where the data flows very well but if an accident happens somewhere, if there is a human error somewhere in the network, in the infrastructure, then the consequences are suddenly global. And we have an upward battle in order to restore order. Thus, both my colleague sociologists at the London School of Economics, the director Anthony Guide and the German sociologist Ulrich Beck, describe this situation by saying that we are actually operating more and more in a risk society where risk is actually human made, is manufactured risk, is not only a matter of knowing the natural dangers. And not only are we creating a risk society with all our actions and increasing actions of controlling risk according to this simple control system mode, we are also creating a world which is less and less in control. We are creating what they call a “run-away-world”. A world which is faster, a world which is more integrated, but at the same time a world, where the risk is much higher: All based on our own actions in implementing innovation and in trying to manage risk.

So the challenge is that we are getting more sophisticated in our risk management tactics, we are getting more sophisticated in deploying information technology and in general business management and organizational innovation. These innovations now stand ready to spread knowledge around. The systems integrated in Jordanian schools, in the program connecting Jordan to the world, means more knowledge, more knowledge in the hands of employees, more knowledge in the hands of people throughout these systems.

“[…] the old equation that more knowledge means more control does not hold anymore. That is: there is more knowledge in society, we have more sophisticated mathematical tools for risk management, we have more sophisticated knowledge management systems but this does not mean more control.”

But what I claim is, that the old equation that more knowledge means more control does not hold anymore. That is: there is more knowledge in society, we have more sophisticated mathematical tools for risk management, we have more sophisticated knowledge management systems but this does not mean more control. It is an illusion to believe what they teach you at the business schools about more knowledge and more control.

So that’s the challenge. How can we manage risk? Is “management” the right word, in a world where we increasingly lose control of resources, of innovation and of what people are learning? This is the correct basis to generate really new ideas.

Thank you very much.

Producers

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