

RISK MANAGEMENT AN IMPORTANT TOOL IN ICT SME'S IN ROMANIA

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ABSTRACT

This paper wants to bring to attention the importance of risks and their management in today's economic crisis. The sector presented is the IT& C, especially software, because Romania had a growth in this area for a few years but beginning the crisis this segment in economy had known a serious decrease.

In spite of international economic improvement, Romania still is not at her best, there for needing strategies for amendment.

Risks exist in everyday life and much more in an economy that is fragile and still developing. Thus, providing the tools necessary for managing risks will make us better understand how to avoid or improve the effects of risk on economy.

Keywords: risk management, IT industry, software, business, global crisis, ERM.

In current language, risk management is associated with risk control or vice versa. In most literature, the two concepts have similar but not identical definitions. Risk management applied formally became consistent only in 20th century thanks to Henry Fayol, one of the first who put the basis for Business Management².

Risk management is actually the name given to logical and systemic methods of identification, analysis, treatment and monitoring risks involved in any activity or process.

Risk management in terms of ISO30001 (Risk Management ISO Standard) specifies risk as uncertainty over objectives no matter if they are positive or negative. In order to manage risk, strategies include transferring the risk to a third party, avoiding risk, decreasing the negative or probable effect of the risk, or even accepting some potential or actual consequences of a certain risk³.

In the context of market expansion and consequences deriving from this process, there is a need for identifying specific elements of business risk that affect organizations and therefor economies.

Although risk management is still “young”, there are opportunities in the business environment that could be capitalized by adapting the firm's mission and management in

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² Paun C., B; (2009). *Managing Business Risk*, Ed. UNIVERSITARA, ISBN 978-973-749-611-9, Bucharest

³ http://en.wikipedia.org/wiki/Risk_management

order to concur with requirements made by business globalization and firm internationalization⁴.

The lack of information, the difficulties of research in this sector is the first cause of insufficient development in risk management.

In recent years a new, broad concept has emerged - enterprise risk management (ERM), which is based on the idea that risks should be looked at holistically across the enterprise, as well as being managed in silos, and that the conclusions reached should influence corporate strategy and the business development process. While numerous businesses round the world have now embraced this new concept, surveys have shown that many of them are finding implementation difficult.

At least four kinds of uncertainty may be distinguished and these may be useful subdivisions within which to analyze uncertainty in a particular context or to understand what aspects of uncertainty have already been addressed:

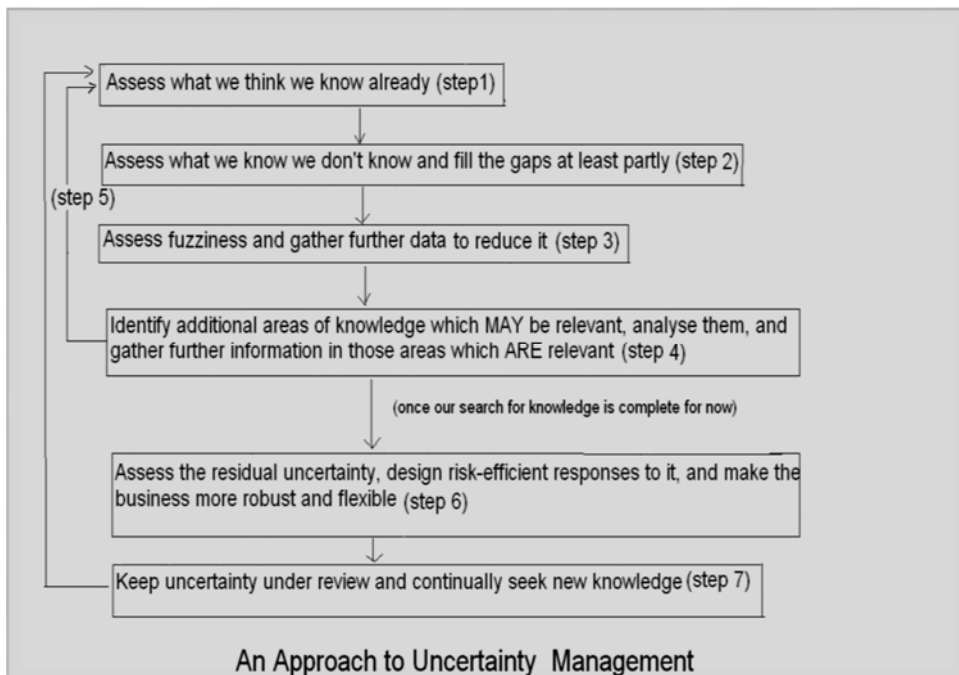
- Event uncertainty - good and bad occurrences or scenarios that may or may not materialize;
- Variability uncertainty - variations in outcomes that are expected to occur but to an extent which cannot be forecast accurately;
- Assumptions uncertainty - the extent to which any implicit or explicit assumptions which have been made to fill in knowledge gaps may or may not turn out to be true. For example, most sources of uncertainty are not entirely independent of other sources, even though this may often be assumed for simplicity.
- Systemic uncertainty - relationships, which are usually themselves uncertain, between different sources of uncertainty, including “knock-on effects”.

Some aspects of uncertainty relate to whether particular forecast numbers are likely to come approximately true, or to the possible range of variation in those numbers, but other aspects concern much broader relevant considerations that may be unquantifiable but still need to be taken into account.

Uncertainty is a perception, and what may be uncertain to one person may be less uncertain to another.

There may be uncertain or unintended consequences of management actions - for example, adding more people to a software development team when a big software project is in trouble has been equated to trying to put out a fire by pouring on petrol.

⁴ Brezeai(Marcu) I., B.; Ph.D. (2011). Marketing Management In The Frame of Change, Business Globalisation and Firms' Internationalization, Sibiu, Ph.D. Thesis



First of all *risk management* represents an essential component of management for achieving objectives:

- A basis for developing a sustainable strategy for achieving company objectives;
- Basis for planning and making decisions;
- Avoiding crisis and wasting resources;
- Efficient use of internal resources;
- Proactive management instead of passive or reactive management;
- Minimizing the effect of risk and the probability of negative events inside the company;
- Protecting the company from those negative effects;
- Active control of companies activities;
- Assigning clear responsibilities inside the firm, creating an active culture to prevent risk at all levels of hierarchy;
- The company management is not responsible for all the liabilities.

The development of risk⁵ management generates a series of advantages for companies:

- Support for business strategies planning;
- Helps achieving companies' goals;
- Improves communication between different levels in the company;
- Promotes progress;
- Offers the certainty of control over the activity performed;

⁵ Cristian Paun, coordinator, Risk Management in International Business, Universitară, 2009, pag.54-55

- Leads to operational efficiency;
- Allows understanding of threats for an activity or project.

Companies can avoid this risk but it requires conducting operations in markets that are not exposed to risk. In an open economy this alternative of risk-hedging is unlikely, because even if companies can avoid⁶ direct exposure to risk through business relationships they have, they are inevitably exposed to indirect risk.

Depending on the specific situations that can be applied, there are five distinct categories of risk mitigation strategies⁷:

1. Accepting risks – refers to how the manager understands the risk and its probability of happening, as well as the consequences arising and makes the decision to not remove the risk. This kind of strategy is usually used when the probability of risk appearance is small or/and the consequences arising are insignificant.

2. Avoiding risks –the second strategy used in certain conditions in order to minimize risks. Minimizing risks does not represent avoiding making decisions or eliminating risk from the project. This strategy is used when it is necessary to change the goal or to eliminate a part of the project, a situation that causes interference in the expected activities and the final results; thus considering an act of wisdom from the manager avoiding the risk of accepting certain alterations that could lead to special problems.

3. Risk monitoring and training plan for the unexpected- this process is based on choosing a set of indicators and following them evolve. Planning for an unpredictable situation appeared as an alternative for risk, by preparing a response strategy before the situation happened. Usually these plans are based on response strategies in case of financial risk (budget overrun, unexpected expenses) or technological risk (unforeseen failure of installations and equipment, inaccuracies relating to technology). The ultimate goal of these plans for the unexpected is that in case of major risk situations, the management team should already have a viable response able to avoid blocking the whole business or even bankruptcy. To this regard, these plans can be similar to certain insurance methods of a company when involved in certain projects.

4. Transfer and risk distribution- in activities that involve special risks or use expensive technologies is preferable to ensure them to specialized insurance companies. This process is practically, a risk transfer to another institution that will insure monitoring and controlling risks. When dealing with important projects, with consistent amounts of money every insurance company must reassure itself in order to avoid risk. Thus, a risk transfer exists even when insurance companies are considered.

An important chapter for risk transfer, specific to financial projects is reimbursable expenses⁸. They refer to the payment of work subcontracted to other companies or

⁶ Economic Tribune, Romanian economists' publication, editions 42-46, 2007

⁷ Paul Marinescu, Project management, course, Bucharest, 2007

⁸ John Holliwel, *the Manual of Financial Risk. A Systematic Guide to Identify and Managing Financial Risk*, London; Pitman, 1997, pg.120

businesses regarding labor, equipment or materials used. The contract management of reimbursable expenses is similar to team management within a company, requiring a clear direction for its activities, setting tangible results and especially monitoring them.

5. Systematic mitigation of risks – is mainly a complex of methods and strategies meant to decrease risks until they become acceptable. Usually, although they were addressed separately, these mitigation strategies are rarely used individually, the most frequently used form, being that of combining them in order to use a complex strategy, capable of providing an appropriate response in an appropriate amount of time.

Any system of risk treatment should provide as a minimum⁹:

- effective and efficient operation of the organization;
- effective internal controls;
- Compliance with laws and regulations.

Today is nearly impossible to not read or hear about the risks of using informational technologies. Top management is more and more interested about the meaning of risk management and risk analysis, applied to informational technologies used inside the company. This is because companies have grown dependent of IT:

- Business processes depend more and more on IT;
- The informational framework is becoming more and more complex, and the critical points in IT that could influence business are increasing ;
- When a decrease of IT services occurs the time to feel the effects is considerably less;
- IT downfall is much more visible outside the processing data center, thus increasing the number of people affected.

Why risk management is needed by companies?

Managers should not limit themselves to treating each time the consequences of events that occurred. Treating consequences does not improve the causes and thus risks will happen in the future, with an increased frequency and a great impact on objectives.

Managers must adopt a reactive management style, which means it is necessary to conceive and implement susceptible measures to alleviate risk manifestation. An oriented reaction towards the future allows the company to master past risks, thus increasing the odds for achieving their objectives.

Risk management facilitates the efficient and effective achievement of objectives for the company. Obviously, knowing the threats allows a classification of them depending on the possibility of manifesting, on the impact over the objectives and costs that appear when we use measures in order to reduce risks or to limit their negative effects.

⁹ A Risk Management Standard, 2002, published by AIRM, the National Forum for Risk Management in the Public Sector, The Institute of Risk Management

Establishing a hierarchy constitutes the base for a new order of priorities in allocating resources, limited in most cases, due to a cost- benefit analysis or effort- effect analysis.

It is essential for the company to focus on what is really important and not disperse its resources on unimportant arias for its purposes. Also, revising from time to time risks, as shown in the standards, leads to resource reallocation, according to the changed hierarchy, thus the priorities. In other words, risk management means resource concentration in the most important areas of interest.

Risk management in software engineering is related to the various future harms that could be possible on the software due to some minor or non-noticeable mistakes in software development project or process¹⁰.

Romania is one of the most interesting markets in Europe for technology investment and trade, as well as a recognized partner for some of the world's most demanding customers in IT services outsourcing, call center support and product development(an example is the company that developed Bit defender).

After the Romanian integration in the European Union and considering the consequences of the economic global crisis, the whole picture of small and medium enterprises(SME's) shows a great deal of vulnerabilities especially for SME's in Romania that are not properly prepared to compete on the European market.

SME'S mostly depend on the national market, but they have been seriously affected by the downfall of national economy during 2009-2010 as a consequence of the economic crisis.

The unfavorable context influenced the performances of SME'S as well as the demographic evolution of business during 2009-2012. Turbulences in the business environment have had an impact on the entrepreneurial initiative and human capital.

IC& T sector situation in 2009

	<i>Total growth (mil. RON)</i>	<i>Export RON)</i>	<i>(mil. Import (mil. RON)</i>
<i>Information and communication:</i>	35,032.86	14,085.90	16,666.20
<i>Hardware</i>	8,502.30	8,671.50	13,536.00
<i>Software & IT</i>	8,066.61	2,622.60	1,353.60
<i>Telecommunication services</i>	18,463.95	2,791.80	1,776.60

Source: MECMA, National Export Strategy in Romania, 2011-2015¹¹

The evolution of the IT industry in Romania has been a common one for developing countries and economies. In the years 2000 the sector was registering a boost, with year - on-year growth rates between 25 and 30%. In the following decade, domestic market

¹⁰ <http://ebookily.co/doc/business-process-management-software-free>

¹¹ http://www.minind.ro/propuneri_legislative/2011/mai/SNE_2011_2015.pdf

technology sales, especially hardware and infrastructure and networks equipment, were the drivers for this growth. Enterprise' investments were supported by national budget allocations as well as funding through European projects applications. National and local administrations, in their efforts of catching up to technological development, contributed largely to the growth of the sector. The software segment was growing as well, but to a slower pace.

As context evolved and both private companies and public administration diversified operations, the necessity for software products to support operations and help them increased highly, so business turnover for the software and services segment went up accordingly. Between 2002 and 2007, Romanian software industry saw a yearly increase of +20% of the sector turnover; at the beginning of 2008, estimates indicated projected growth rates of at least 15% in the following years¹².

The pre-crisis years were extremely beneficial for the Romanian IT industry - the number of companies more than tripled to reach 15,000 in 2008, while the number of employees in the sector was close to 55,000, for the software segment only¹³. Romanian software companies used this accelerated growth period to gather knowledge - client business side, as well as internal operations side, gain customers and better position themselves towards international customers. Some of the bigger Romanian product companies had their first attempts at entering regional and international market by establishing local presence, so that they could be better connected with their clients and prospects.

Between 2005 and 2008 at least 15 major mergers & acquisitions and investment funds takeovers took place indicating the rising interest for Romanian companies and market.

The global crisis brought about a non-typical evolution of markets that generated significant changes for companies in the software and services sector. Thus servicing mostly public sector companies found themselves in difficulty. Even though in 2008 the turnover generated by the domestic market operations was superior to exports, the general pressure on and from international customers for better cost management, if not cutting, was put to an excellent use by exporting Romanian companies, mainly in the outsourcing business.

The focus on increasing productivity and decreasing costs through technology was actually the better card for Romanian software companies, both on the internal and external market.

2010 was the post-crisis recovery year for Romanian software and services exporters. Both the number of projects and their value were rising, as a result of how international customers chose to approach the changes induced by the global crisis. Exports increased by 40% between 2008 and 2011; this reflected the rising interest for Romanian companies especially the software development area (offshoring, near shoring).

Statistics on the labor market on field of interests for the Digital National Agenda 2010

12 <http://www.romaniait.com/cebit2014/>

13 <http://www.romaniait.com/cebit2014/>

	<i>Number of people who worked at least days on full schedule (thousands people)</i>		<i>Medium gross salary (lei/employee)</i>		
	Total	Women	Total	Men	Women
<i>Total employees</i>	3,554.00	1,680.00	1,721.00	1,830.00	1,600.00
<i>Information and communications</i>	82.00	33.00	3,541.00	3,808.00	3,142.00
<i>Professional, scientific and</i>	84.00	38.00	2,602.00	2,627.00	2,573.00

Source: NIS Statistical yearbook 2011¹⁴

SME'S in Romania in IT&C sector

	2009	2010	2011
<i>Number of SME's</i>	517,870.00	468,561.00	463,404.00
<i>Information and communication</i>	19,588.00	17,625.00	17,391.00

Source: NIS, Romania by Numbers 2012¹⁵

Romania is not the lowest cost location for outsourcing, but when we add performance to the equation it can be highly competitive.

If sector experience, technology expertise, quality of the proposal, solid procedures of financial reporting and coordination systems exist then these are some of the criteria that decide in favor of Romanian companies.

Romania cannot hope to rival countries such as India, China and Russia in terms of depth of expertise across application development. However, Romanian companies often excel in use and development of new technologies and offer strong software development methodologies and processes.

Romanian IT services companies have been involved in projects on the internal market that addressed very specific vertical segments in technology. Looking at the international market, these companies hope to leverage turn-key software applications and customization expertise gained in, among other things, public sector, education and finance sectors.

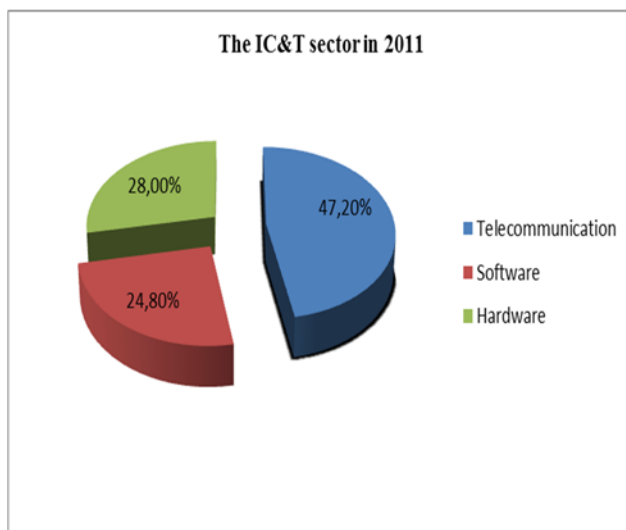
The economic crisis didn't cause major shifting in the software development and IT services sector from the geographical point of view, but we have witnessed a better evolution of clusters outside Bucharest.

¹⁴ <http://www.insse.ro/cms/rw/pages/anuarstatistic2011.ro.do>

¹⁵ http://www.insse.ro/cms/files/publicatii/Romania%20in%20cifre_%202012.pdf

The capital city¹⁶, Bucharest, is still the first in the software sector with 63% of total revenues and 50% of the personnel; followed by counties like Timiș with 8.6% and Cluj with 6.6%, both manifesting steady growth¹⁷, are still far behind.

From the total growth in 2011, 4.1% represents the IC&T sector, with 1% less than in 2010. 47, 2% from the total growth of this sector goes to Telecommunication, 24, 8% to software and IT, and the rest of 28% to the Hardware field.



IT& C indicators specific to Romanian economy

<i>Indicators</i>	<i>2010</i>	<i>2011</i>
<i>Enterprise numbers</i>	15,570	14,595
<i>Medium employees number (thousands)</i>	121,000	128,000
<i>Total growth (mil. lei)</i>	40,474	40,113
<i>Staff expenses (mil. lei)</i>	5,865	6,671
<i>Gross added value (mil. lei)</i>	14,107	14,320
<i>Gross operating surplus (mil. lei)</i>	8,243	5,236
<i>Investments (mil. lei)</i>	2,600	3,016
<i>Share of turnover of IC& T enterprises of total growth by economic activity (%)</i>	4.6%	4.1%
<i>Share of enterprise's total growth of those with main activity in publishing software and information technology service activities in total turnover of enterprises in IC&T (%)</i>	23.2%	24.8%
<i>Share of turnover of the main activity of telecommunications enterprises in the total turnover of IC&T (%)</i>	43.7%	47.2%

¹⁶ <http://www.romaniait.com/opportunities/market-research>

¹⁷ <http://www.anis.ro/geo-distribution-of-the-romanian-itc-industry>

<i>Turnover of work editing software and information technology service activities (mil. lei)</i>	9,408	9,959
<i>Share of of turnover of enterprises whose main activity is publishing software and information technology service activities in the total turnover of economic activity (%)</i>	1.1%	1.0%

Source: NIS, Informational society, 2013¹⁸

At the beginning of 2011, in Romania 14.595 SME's worked in IT&C, approximately 3% from the total of SME's registered and active in Romania that same period.

According to the national reforms program 2011-2013¹⁹, at the end of 2011 the level of investments in research and innovation had to increase up to 0, 48% from GDP (0, 33% public sources and 0, 51% private sources), but according to the National Institute of Statistics, even though it is the same percentage the sources are different: 0, 30% public sources and 0, 18% private ones.

The European Agenda 2020 establishes a national target, regarding research and development, to reinvest 2% of GDP in this area.

Although Romania is not a significant consumer of software, it is a major manufacturer.

The net investments made in Romania²⁰, around 10% originate in the local and State budget, most sums (60%-70%) are covered from own sources of the private sector. IT&C sector in 2011, made investments of 3 billion lei, approximately 8% of the total growth of this sector for the same period.

The investment is low compared to other countries. A lot of benefits can be obtained if were supported and financed from public funds, but especially if it modifies it's promoting strategy of innovation and e-commerce products.

Research infrastructure is crucial for innovational systems based on knowledge.

Enterprises²¹ with technological innovation, by type of innovation, 2009-2012(number), Romania

18 http://www.insse.ro/cms/files/ISI/publicatia_SI_13.pdf

19 <http://www.insse.ro/cms/rw/pages/anuarstatistic2013.ro.do>

20 National Institute of Statistics – Romania by numbers 2013:

http://www.insse.ro/cms/files/publicatii/Romania%20in%20cifre_%202013.pdf

21 National Strategy regarding Digital Agenda for Romania-July 2013

	<i>Tot al</i>	<i>Prod uct innov ation</i>	<i>Process innovat ion</i>	<i>Process and product innovation</i>	<i>Unfinished or abandoned innovation</i>	<i>Enterprises with nothing technological innovation</i>	<i>with but</i>
<i>To tal :</i>	5907	710	1965	3073	159	1951	
<i>Ser vic es</i>	2156	279	749	1072	56	689	
<i>Sm all</i>	1606	217	556	789	44	533	
<i>Me diu m</i>	419	48	155	205	11	122	
<i>La rge</i>	131	14	38	78	1	34	

Source: NIS, Statistical index, 2013²²

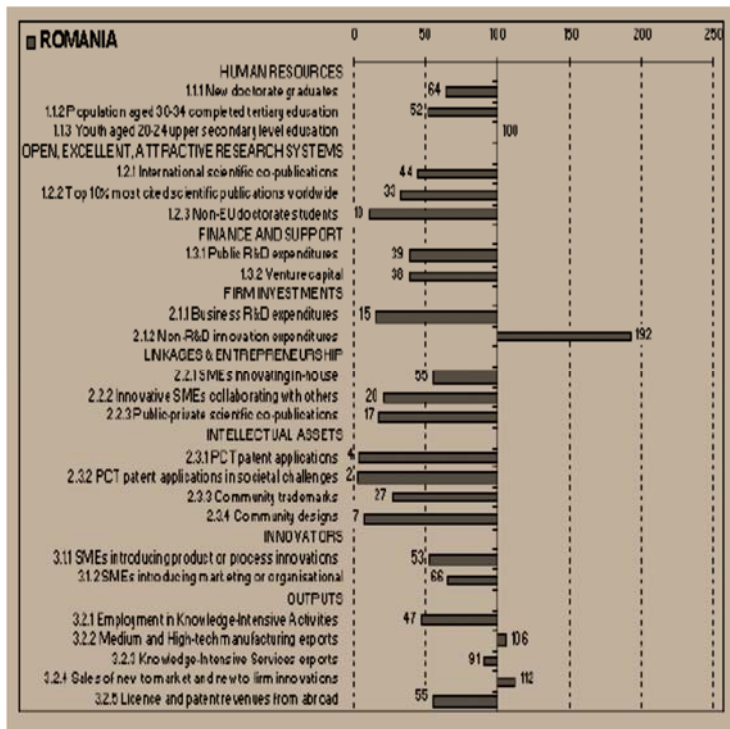
SME's have a major share, 99,7%, in the total of active enterprises in Romania, and provide a great support for the labor market, approximately 65,7% of the total number of Romanian employees work in SME'S.

But the **SME** sector in Romania is not strong and competitive, because the enterprises are not solid as number or technological capacity.

Evaluations made by the European Commission regarding SME's from European Union show that SME's in Romania have been seriously damaged by the economic crisis, because after a 10 year growth they have lost the most employees and added value from the European Union.

Romanian SME'S have also the lowest rate of innovation from the rest of eastern European economies: Latvia, Poland, Hungary, Lithuania, Bulgaria and Romania.

²² <http://www.insse.ro/cms/rw/pages/anuarstatistic2013.ro.do>



Source: Cross border regional strategy for innovation: the story of two regions, a single strategy to bring industry research and innovation closer together (Romania-Bulgaria), 2011

CONCLUSIONS

The uncertainties in the economy over the past few years have had a major effect on how enterprises operate these days, everywhere. Enterprises that used to operate evenly with the help of forecasts and prognosis now refrain from making business judgments. Now, enterprises have a new focus: **to manage risk**.

Risk is the leading cause of uncertainty in any organization. Thus, enterprises concentrate on identifying risks and managing them before they even affect the business. The skill to manage risk will help enterprises to act more confidently on future business decisions. If they are aware of the risks they are facing that will give them several options on how to deal with potential problems.

As stated before SME's are a big part of the Romanian economy therefor the need for managing risk is urgent. The IT& C sector, especially software, needs a boost.

Basic activities in any risk management system are:

- Risk Identification.
- Risk Assessment.
- Risk Control.

Therefor we have to identify the risks in a software enterprise :

- Risk of management
- Risk of brand
- Technological risk
- Competition risk
- Financial risk
- Risk with suppliers
- Risk with clients, to assess them and depending on the attitude and the need for improvement, we can manage and control the risks, or at least we can make a decision based on facts that will lead us to more positive results. We can never eliminate risk from our decisions or our lives, but we can try to manage the outcome.

In an ERM environment considerable management effort will be devoted to reducing uncertainty, which will usually be undertaken in successive steps. Eventually a point will be reached where it is not considered worthwhile at the present time to seek to reduce uncertainty further, and for practical purposes some assumptions may then have to be made about the residual uncertainty which remains. However, it should always be remembered that these areas of residual uncertainty may affect outcomes in ways which differ from the assumptions. Uncertainty may, of course, be reduced further at a later date, through the discovery of further knowledge or information, and ERM requires some management resources to be devoted to the discovery process. Inevitably uncertainty will include some really major future possibilities which can only be glimpsed or may be totally out of view. However, a methodical and focused approach to uncertainty can reduce its negative impacts and improve its positive impacts, thus increasing the chance and degree of success.

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