

# Essay on efficient implementation of integrated risk management system (IRM)

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## Abstract

The enterprise performance, in both short and long term, is highly determined by the nature of the applied corporate governance. The integrated risk management is a recent mode of business administration that takes into consideration the combined effects of all the risks on company's value (function to optimize).

The risk map (one of the IRM pillar) varies based on: company's activity, size, officer's background...etc, which complicates the implementation of an efficient integrated risk management system. Because of this issue, the present document tries to present an integrally adequate solution covering distinct dimensions. The achieved results constitute a set of guidelines toward a road map to an efficient implementation at the all corporate levels.

Although the design of these key directives, IRM can not be a cure to all the firm's dysfunctions.

**Key words:** Risk, risk management, variance, performance, risk map, culture of risk management.

## Introduction

Companies are exposed to a challenging competitive environment. This context is stressed by many uncertainties at different levels (commercial, operational, financial, technological...etc), thus enforcing decision-makers to, first review their governance mode, and second wisely adopt a proactive vision in the management strategy.

The commonly adopted process, by most companies is limited to an individual and a simple treatment of each risk, while ignoring the interaction that may occur between them.

This approach, in fact, has proven its limitations to the extent, that it simplifies and does not reflect the reality, in contrary, the comprehensive analysis, of all company's risks has produced remarkable outputs: cost reduction on insurance contracts, minor financing cost, opportunities for innovations, continuous assessment of company's activity, enhanced attractiveness in the eyes of many partners (banks, investors, clients, government...etc).

This new management is the core subject of integrated risk management theory (IRM), commonly called **enterprise risk management**.

*“ERM is the discipline by which an organization in any industry assesses, controls, exploits, finances, and monitors risks from all sources for the purpose of increasing the organization’s short-and long- term value of its stakeholders”<sup>1</sup>.*

This article has the advocacy to expose the pillars of IRM (section1), implementation related difficulties (section2), and the last section will try to present guidelines to improve this new approach.

## **Section1: Characteristics of IRM**

The IRM is a new approach based on the implementation of process that attempts to identify the potential events that may impact the company’s activity, to manage all risks, within acceptably pre-determined tolerance interval, and to ensure the achievement of strategic goals.

The IRM does not try to fully eliminate the risk. Indeed, it attempts to target, for each type of risk, an optimal level that will maximize the company’s value. In other way, the maximization of shareholders wealth depends on targeted risk level.

The logic behind IRM is that the value of the firm is maximized for specific threshold taking all risks together. The literature covering IRM provides 3 options for risk management:

- Modification of the firm’s operational process.
- Adjustment of capital structure.
- Utilization of financial instruments such as derivatives.

The advantages of IRM are beneficial to the firm’s sustainability:

1. The reduction of total risk increases the return of shareholders and consequently the value of the firm in the long run.
2. The reduction of financing cost, since the company becomes less risky.
3. The increase of low cost debt will help to take advantage of tax saving (more debt less tax paid).
4. The IRM helps to foster across collaboration between firm departments.
5. The IRM promotes the culture of risk management.

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<sup>1</sup> CAS Committee on Enterprise Risk Management

The pertinence of these advantages at both internal and external parts deserves complete understanding of the implementation of this new governance.

However, it is worth to mention, that there is no standardized IRM system to all industries, each organization has its own risks map depending on the industry sector, size, property structure, technology used...etc. The IRM applied on financial institution is not similar to that on manufacturer, each sector has its own characteristics and particularities, and thus requires a customized treatment.

Although the risk inventory and treatment differ among sectors, there are some common and standardized steps to all IRM systems.

### **1.1 Risk identification**

This operation consists of listing all eventual risks (quantifiable and unquantifiable<sup>2</sup>) in direct relation to the function to optimize; the risk officer has to enumerate all elements that may negatively impact the company’s value.

The consulted literature displays a variety of risk categories, depending on organization activity.

The inventory of all risks is a crucial step, and requires the implementation of collective intelligence via collaboration and coordination between all decision makers.

In addition, the identification of risks is established at the top of hierarchy scale within an independent<sup>3</sup> and specialized structure. Its independence is a warranty of the objectivity and the pertinence of its decisions and results. It is also essential to the diffusion and the permanency of the risk management culture.

Indeed, the risk officer should not establish the risks map based on his personal tendency, or professional experience, the risk framework evolves over time, and thus requires for its assessment, an adoption of dynamic approach.

The identification step should connect the risk to its origin (department, section, branch...etc), which subsequently will facilitate the treatment.

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<sup>2</sup> Albert Einstein : “ Everything that can be counted does not necessarily count; everything that counts can not necessarily be counted”

<sup>3</sup> Highly recommended by COSO(Committee of Sponsoring Organizations)

The methods used herein, are as following:

1. Documentary audit.
2. Interviews.
3. Site visite.
4. Questionnaires.

## 1.2 Estimation of probability of occurrence and determination of risk cost

The accurate estimation of risk probability distribution becomes possible, because of the technology development and the accumulated expertise of risk officers as well. This estimation is applied through the run of simulations. In the second step, the determination of risk impact is assessed using the calculation of dispersion indicators (companies commonly use the variance or semi-variance in order to measure the negative side). The simulations also help to inform about the cost of risks. The result of the product (probability X impact) of the probability of occurrence and the related cost allows to prioritize, and rank the risks in term of importance on maximization of firm's value. The probability distribution estimation has to be done for each risk, and respectively followed by the calculation of, joint probability, conditional and marginal ones among risks.

In contrary to simple management, IRM tries to identify a distribution of joint probability of risk portfolio, the total risk of risks portfolio is not equal to the sum of risks; it is indeed, the result of the impact of the combination of set of risks on the company's value.

$$\text{Max (firm's value)} = F (P (P_1, P_2 \dots P_i \dots P_n), V_{t-1})$$

$P_i$ : Probability of occurrence of risk  $i$  at instant  $t$

$P$ : Joint probability between different risks

$V_{t-1}$ : value of the company at  $t-1$

The maximumization of company's value (at instant  $t$ ) is determined for specific and unique threshold of each  $P_i$ .

The objective of risk office is to find out the combination among  $P_i$  for which the company's value is maximized. This argument supports the principle of IRM (IRM does not intend to eliminate all risks, given that it is impossible to have 0 risk in probability

game), but it attempts to keep risk within acceptable interval<sup>4</sup>, while taking into consideration the cost incurred.

## 1.3 The presentation of risk mitigation

Once the risk is assessed, the risk officer has to benchmark it, according to the acceptability criteria (risk interval tolerance). The results obtained help to specify the adequate actions to be taken by the risk management department. In other way, if the level of risk incurred is not within the acceptable interval, the risk department has to undertake the necessary actions. This intervention can take many forms depending on the context, the proper means of the firm, and the cost of the action as well.

The risk management department has to select one or combination of following actions, while taking into consideration risk impact, and the acceptable interval allowed by the firm:

- Reduce the incurred risk by adjusting the activity that drives it.
- Change the probability of occurrence (with review of the related cost)
- Mitigate the risk via the usage of financial instruments such as derivatives or the purchase of multi-risk insurance contracts.
- Avoid risk by changing the activity that originates it.

## 1.4 Monitoring

The achievement of this step relies on the establishment of well developed information system. It should permit an efficient control of the risk evolution. The control uses two types of balanced scorecard designed for risk perception:

1. The scorecard of risk hazard: allows assessing the frequency and the extent of the sinister in order to master the firm structural trend.
2. The scorecard for performance: on the basis of accurate calculus (of frequency, extent, and risk tolerance), this scorecard assures the achievement of strategic objectives and the understanding of the related process.

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<sup>4</sup> Each risk distribution has its proper acceptable interval

## 1.4 Readjustment

This step requires a permanent review of the risk management strategies performance and evolution. The purpose is to continually keep adapting the risk management (since risks keep changing over time) to the strategic directives. Indeed, a review of, the risks map, the assessment methods and mitigation of risks are highly recommended. Herein, it is worth to disclose the crucial utility of the business intelligence. It allows the firm to have the necessary means, the needed information, and the mechanisms capable to set up proactive rather retroactive readjustment.

## Section 2: IRM implementation obstacles

The success of the steps previously mentioned, is conditioned to the extent of consolidation and integration of risk management process. In fact, the integration is difficult to achieve, especially at the operational level, due to many obstacles at the system implementation. These obstacles incurred because of lack upon the organizational prerequisites such as: the integration of staff members, the identification and assessment of risks, the importance of information system to facilitate and to ease the monitoring and the readjustment actions...etc

### 2.1 Risk identification and assessment problems

The establishment of IRM constantly requires the identification, the estimation of the frequency, and the assessment of the risk impact, which explains the high turnover review of risks map. Lack of regularly reviewing the risk architecture will cause serious problems (ex: the design of irrelevant risks map will undermine the risk department mission).

The problem of risk map review will aggravate in presence of multiple interveners, whom the responsibilities are the identification and the assessment of risk. Moreover, in the absence of clear definition of responsibilities and attributions among interveners, the asymmetry of information is strongly expected.

### 2.2 Risk monitoring and readjustment Problems

The monitoring system permanency depends upon the comparability and the update of the information collected. At this level, some organizations are still relying on information system platform that is not frequently updated, which deteriorates the quality of IRM department.

The inefficiency of the monitoring system produces irrelevant organization readjustment. For instance, the individual assessment occurs after the risk event, which will not favor a prompt action of risk management department. The firm intervention should be proactive and economic rather than retroactive and costly.

### 2.3 Integration problems

The IRM is considered as an academic work rather than a set of management practices aiming to enhance the organization efficiency. In fact, the lack of conceptual definition of IRM framework, the non specification of risks officers' responsibilities, and the system beneficiaries, weaken the approach core advocacy and the efficiency, and transforms it to simple and hierarchal sterile speech.

### 2.4 Audit problems

The IRM attempts to facilitate the audit process. The non compliance to international standards, and to firm's guidelines, makes the efficiency assessment more difficult. In contrary, the compliance to international standards helps to perform peer review comparisons<sup>5</sup>.

The IRM is structured path, and requires the alignment of staff members, technology system, and intelligence in order to assess and manage the firm's uncertainties. The success of its implementation requires the establishment of conditions which will be the subject of the followings section.

## Section 3: Propositions for efficient implementation

The strategic impact of IRM system in both internal and external level requires the conduct of deep reflection, toward the previously mentioned obstacles.

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<sup>5</sup> Even though, the correlation between implementation and the compliance with international norms is not verified.

It is worthwhile to consider these difficulties and converted them to new opportunities of innovations and niches to be explored. Thus, the optimal benefits to generate from IRM system depend on the respect of guidelines at multi-levels:

### 3.1 Guideline at cultural level

It is incontestable that the governance mode reflects the culture in place. Each action, along the hierarchy scale, is directed toward predefined company's values and attitudes. A strategic change in the firm organization is primarily based on culture and value conversion. Consequently, company's board of directors should allocate a substantial value to, the anchorage and diffusion of risk management culture to both their immediate staff members, and to those who are concerned by the occurrence of risk event.

The culture applied should also be spread to other partners such as: Suppliers, clients, bankers...etc. The reinforcement of this proposal is capable of reducing the resistance that may occur in both internal and external sides.

### 3.2 Guideline at legal level

The decision makers should, in the implementation of IRM, be concerned with the compliance to the legislation and rules. They have the responsibility to respect the ethical code, in contrary they will run the company into highly costly lawsuits. These lawsuits will directly impact the firm's image, and consequently cause a downturn of the firm market value.

The best practices are not only compliant with the legislation, but also realize a significant value added. For this reason, it is preferable to diffuse the best practices to all company's structures, especially for those who operate in geographical territory of zero law tolerance.

### 3.3 Guidelines at technical level

The propositions at this level, are multiples and vary with nature of organization, the followings are common guidelines for better technical risk management

- The calculus of variance to determine the importance of risk is not free of default; two populations having the same risk variance may

not be the same at the negative side of the probability curve. For this matter, the determination of indicators such as skewness and kurtosis are more accurate, also the function VAR provides a precise assessment of the risk extent.

- The calculus of joint and the marginal probabilities required developed program software. The Crystal ball with Monte Carlo simulation provides accurate and prompt results at a low cost.
- Including many variables makes the joint probability difficult to find out, the best mathematical-statistical function to use is the *Copula* function, and its application needs the marginal probability and the dependence between variables in order to determine the impact of individual risk given conditional probability of the rest of risk factors. The optimum individual risk level is correlated to the maximization of the firm's value.
- The risk officer, with his staff members (using bottom up approach) have to develop risk key indicators that smooth the monitoring step<sup>6</sup>.
- Elaborate and establish the process and tools for risk management
- Design and initiate a procedures guideline for risk and frauds prevention<sup>7</sup>
- Provide training and programs on risks inherent to the company's human resources.

### 3.4 Solution at organizational level

The firm organization should be aware of the following :

- The necessity of the establishment of business intelligence in order to analyze the tendency evolution of the business evolution.
- A full integration and communication between board of directors, managers, and staff members<sup>8</sup>.

<sup>6</sup> COSO Paper, supra note 34, at 17 – 18(Key risk indicators... are metrics used by some organizations to provide an early signal of increasing risk exposure in various areas of organization).

<sup>7</sup> Price Waterhouse Cooper web site

<sup>8</sup> [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1495856](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1495856). The influence of board composition, audit fees and ownership concentration on enterprise risk management), understanding of

- A clear definition of the strategic management, supervision and monitoring or risk.
- Development and diffusion of values that insure the integration of risk management in firm's culture

## Conclusion

The IRM constitutes a surplus in the corporate governance's theoretical framework. Its implementation is considered as a challenge that requires both integration and communication of decision makers, partners, staff members, subordinates...etc.

It should be considered as a source of innovation and opportunity to introduce new solutions to better performance and maximization of the firm's value in the short and long run.

Finally, it is worth to mention that IRM is not intended to be a cure to all corporate problems; it aims to lower the time period of downturn of the firm's activity. Further studies toward more technical solutions are well recommended, more efforts are also needed to enhance the integration into the IRM culture within the corporate environment.

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risk management philosophy, review risk portfolio, disclosure of risk management practices.