

Jadwiga BIZON-GÓRECKA

Jarosław GÓRECKI

Faculty of Civil and Environmental Engineering and Architecture
UTP University of Science and Technology, Bydgoszcz, Poland

SOME FACTORS TO OPTIMIZE THE COST OF RISK IN THE ENTERPRISE

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Abstract

The article presents risk costs in the enterprise in total terms. It was emphasized that there are total costs of risk showing all the costs connected with risky decision-making, including the costs of prevention. Financial effects of the disturbances of production systems in the enterprise are presented as: internal costs, external costs and costs of prevention action.

Introduction

The term "risk" occurs in the management science usually in the analysis of decision-making processes; it refers to the characteristic of events which deprives (or limits) decisions and resulting from them: competitive advantage and economic efficiency. The probability of such events is a principle of risk.

Risk, which is connected with the engineering or economic systems, results from the probability that a system will not fulfill functions it was designed for. Risk can be specified as the probability of loss in the system caused by potential hazards.

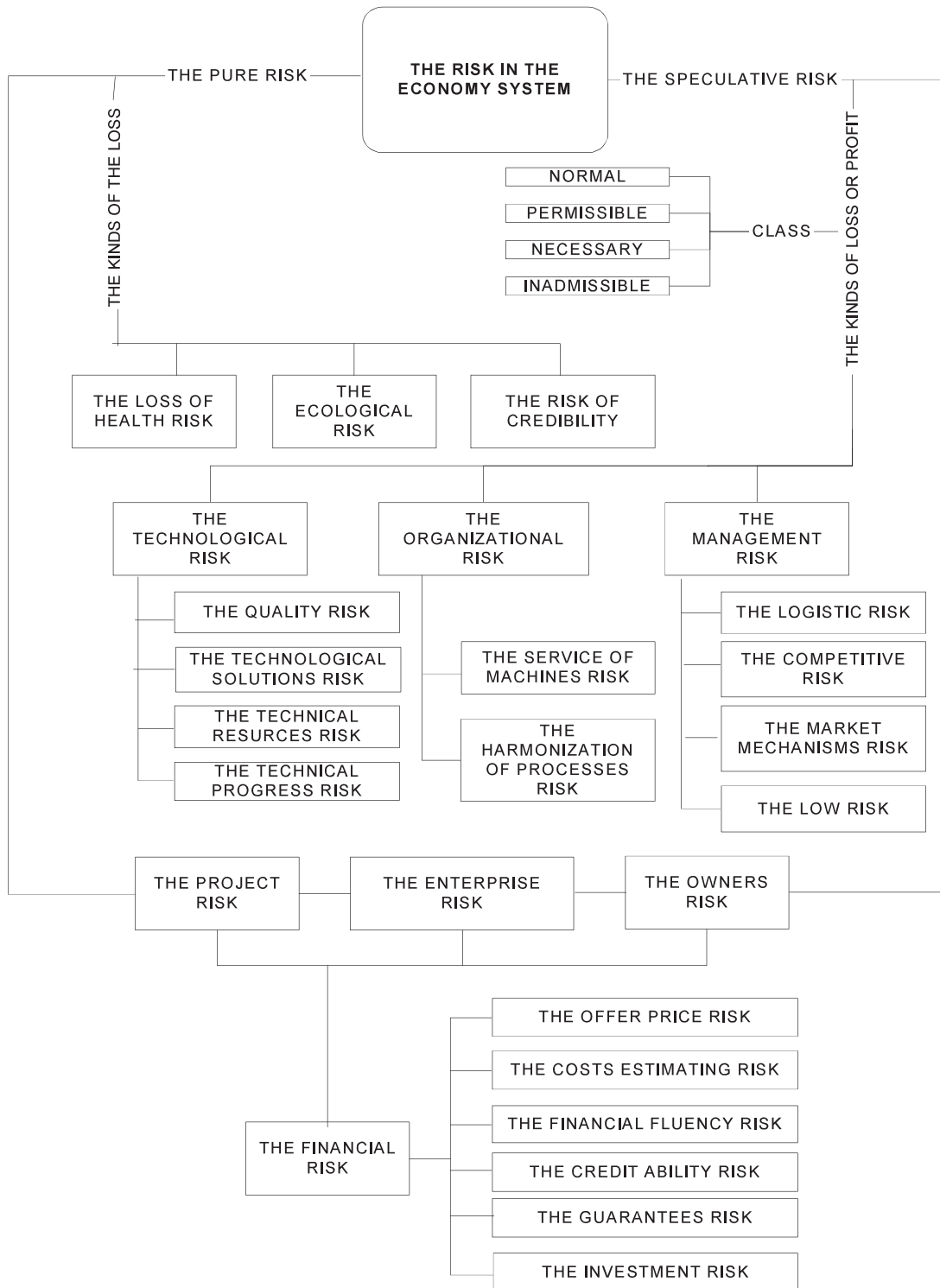
The risk in the enterprise is connected with an incomplete predictability of the future conditions of its functioning.

Risk should be defined as deviation from the expectations. It can be also associated with the events that have impact on the established goal. Risk is measured by its consequences, intensity, frequency and, subsequently, by the probability of certain loss. [Masny, 2002].

The identification of risk has to be based on the analysis of conditions and circumstances. It has to be related to threats of the aim achievements on strategic and operational level. It should present the areas, in which it is possible to get some advantages on the market.

The pattern of the specification of the risk in the economic system represents Figure 1 [Bizon-Górecka, Górecki, 2013].

Fig. 1. Scheme of the risk in the economic system



Source: elaborated on the basis of [Bizon-Górecka, Górecki, 2013].

The risk in the enterprise depends on many varied factors that in every enterprise have to be defined and considered.

Phenomenon of the risk is used in the situation, when a result is unknown, but there is a possibility of future anticipations or if there is probability of appearing some different final situations.

In search for effective ideas for "tomorrow", economic organizations restructure themselves in different areas. Restructuring can refer to the structure of capital, production, and also management. The implementation of the strategy of risk management is one of the forms of restructuring the management of the organization [Bizon-Górecka, 2002].

The identification of risk and initial calculation of its probability and costs starts by marshalling the problems of risk.

Further, it is necessary to make detailed calculations of the effects of risk and its prevention.

Risk factors in the enterprise

The risk in the economic system depends on many varied factors, which in every enterprise have to be defined and considered. These factors can be divided into three groups:

- 1) the factors of the external situation of the enterprise, e.g.: the factors of supply and sale, the accessible technologies of the production, competition, buyer's requirements;
- 2) the factors of the internal situation of the enterprise, e.g.: the strategy of the enterprise, the structure of the production, organizational structure, the size of the enterprise;
- 3) specific factors connected with the realization of definite projects, e.g.: the necessary time to initiate, transience, environmental impact.

In planning of activities under a high degree of reliability, the attempts of improvement of the ways of identification and the estimation of the risk in the enterprise are undertaken. Identification and assessment of the risk in the enterprise are important stages of the management of the risk at the enterprise (Enterprise Risk Management).

Specifying the context of risk analysis is a reference to the identification of risks. It is necessary to define the strategy of the organization, internal conditions of its realization and the general concept of the risk management (level, range, aim).

The essential matter is to find the relations between the risks identified in the economic system with a corresponding class of risk:

- the risk of general business environment - resulting from the external situation of the enterprise:
- the risk of macro business environment - risks appearing in the macroeconomic scale on the level of the country and global level (also the political risk),
- the risk of micro business environment - including the local situation of the enterprise and problems, resulting from the branch specifics in which it operates;
- the risk of internal business environment - resulting from the changes of the internal situation of the enterprise,
- the specific risks - resulting from changes of functioning and the organization specificity.

The risk mapping, consisting on the risk of a functioning of the enterprise, it has to be based on the analysis of its organizational structure and conducted activity, which is classified the most generally as:

- operating activity, basic kind of the activity of the unit (productive, trade, service) and different kinds of the activity, not ranking to the investment or financial activity;
- strategic risk, basic kind of the investment activity whose subject is a purchase or a sale of material fixed assets (fixed assets, fixed assets under construction), immaterial and legal values, long-term investments and short-term financial assets (except for money and their equivalents) and connected with the money costs and advantages, except for these related to the income taxes;
- financial activity, which subject is non-operating, to get the sources of funding or paying off them, as well as connected with the costs of money and advantages, except of those that relate to the income tax.

Generally - from the point of view of the areas of the activity - risk can be defined as: *the operational risk*, connected with undertaking activities of the operational level, *strategic risk*, engaging investing in the future of the organization (also identified as the investment risk) and *financial risk*, connected with the prices of products (rate of interest, monetary, etc.), liquidity (cash flows, expectation of costs, etc.), or the credits (e.g. the regulation of the obligations). They treat to phenomena and activities (or their renunciation) in the individual ranges of the activity.

It should be also considered that the risk exists on the following levels of the organization: the level of *the organization*, the level of individual *processes*, the level of *workplace*.

The estimation of the risk consist of an estimation of the probability of the pronouncement of threats from the title of independent factors from the people of the organization, and also dependent on them, affecting on not achieving the aims on the level of position, processes and whole organization. A need of cohesion of aims at these three levels is emphasized in the literature [Rummler, Brache, 2000].

The value of the risk $VaR(t)$ portrays the sizes of the risk, counted as the product of the probability of the risk $R(t)$ and value exposed to the risk Va . It should be noticed that every action implies the risk in many areas.

The total value of the risk is a sum of the products of probabilities of the risk in the given area „i” ($R_i(t)$) and a value exposed to the risk in this area (Va_i):

$$VaR(t) = \sum_1^n R_i(t) \cdot Va_i$$

Risk management in the enterprise

The management of the risk means the management of current activities with the thoughts about tomorrow. According to P.F. Drucker [Drucker,1995], during the stormy times managers can't presuppose that tomorrow will be the prolongation of today. Just the opposite, they have to manage with the thought about changes; the changes as the chance and as the threat. He also claims, that „managers have to more and more strongly underline the responsibility for earning on the costs of the risk...”.

The risk management, as the art of making rational decisions, runs in following (basic) stages by standards [Bizon-Górecka, 2007]:

- 1). risk identification,
- 2). risk estimation,
- 3). steering the risk,
- 4). funding the risk,
- 5). control of undertaken activities.

Risk identification:

The *identification* of the risk depends on the qualification, what kinds of the risk threatens the enterprise and in what range. The analysis of individual processes should be obligatory conducted from a point of view of their threats, and then their classification. They are also subject of the detailed analysis of external events that threat the enterprise from outside and the ones that can come into exist inside the enterprise and threaten in a different way.

Risk estimation:

Estimation of the risk consists of the qualification of the possibility of the rise of damage (probability and the size of the loss). Correctly conducted opinion about the risk allows to undertake some activity to reduce the degree of risk of the enterprise on the loss of its assets.

Steering the risk:

Basic aim of *steering* the risk is the qualification of the prevention centres that eliminate or restrict the estimated risk. The choice of the suitable centres is the result of the detailed analysis of effectiveness and the costs of their implementation each time. The costs of the risk mitigation cannot be higher than the cost of damage which can occur (damage in the material and immaterial meaning). Steering the risk consists of undertaking actions restrictive to the risk to put admissible sizes. Risk mitigation stands up in the contradiction with the remaining aims of the activity of the enterprise, often in the contradiction with achieving desirable profitability. Economic organizations usually aims at the maximization of the profit.

Funding the risk:

All risks, which are not eliminated have to be funded. The basic forms of *funding* the risk are:

- maintenance of the risk on the own part:
 - without applying the means of prevention,
 - with the use of the means of prevention;
- transfer of the risk on different subjects (e.g. tradesmen, buyers, subcontractors, insurance companies):
 - total,
 - partial (with franchising, the limit of the responsibility, the exclusion of an object and the range of insurance etc.).

Control of undertaken activities:

The aim of *control* of the undertaken activities is to check the efficiency of activities aiming to limit the risk. The procedures of internal controls play a great role in controlling and limiting the risk.

The procedure for management by risk should include the following stages [Bizon-Górecka, Górecki, 2014]:

- Initial specification of key areas of risk,
- Specification of the situation in the environment causing some hazards,
- Localization of places where danger occurs in respective internal processes,

- Creation of descriptions of dangers connected with the occurrence of random dangers,
- Specification of the map of risk,
- Building the map of processes in the enterprise as a picture of the reliability structure,
- Creation of a set of measures of achieving the goal of processes.

The conditions of an effective risk management are made by systemic approach, which holistically encompasses all the organisation's areas.

Risk management system provides a framework for individual risk management tools, which are, for instance: an early warning system, corrective strategies, the system of minimizing market risk and customer risk, and others.

To put it simply, risk management is a chain of actions oriented towards minimizing negative impact of unpredictable factors, internal or external, upon an enterprise; a sort of an anti-crisis policy. It is also using the opportunities with the inclusion of optimization of risk costs. As such, risk management encompasses mainly:

- systematic examination of risk issues within the entire organisation; namely, examining the impact of external random factors or any other hazards generated by the organisation itself (resulting from the selection of technology, i.e. the techniques and methods of information and manufacturing processes as well as the accepted organizational forms and managing these processes),
- assessment of risk levels as the probability of certain hazards and seeking the synergic correlations between certain risks,
- implementation of a complex strategy of reaction to risk (on the basis of all available data).

Specificity of risk costs

Random character of economic phenomena in the enterprise makes claim to interpret the costs of risk in probabilistic terms. Thus, probabilistic methods serve to set the most probable costs of risk – the most popular one is the Monte Carlo method.

The total costs of risk should be, in turn, included in the balance, showing all the costs connected with risky decision-making, the costs of prevention included. Apart from information at the level of risk, information about its financial effects is important. Financial effects of the

disturbances of production systems in the enterprise can be presented as: internal costs, external costs and costs of preventive action [Bizon-Górecka et al., 2015].

As *internal costs* we can see:

- losses connected with stoppages of employees and technical means (service of damaged system and cooperating ones),
- cost of start-up and synchronization of work of the whole facilities (subsystems),
- losses resulting from worse quality (shortages) of the effects of action,
- losses of raw materials, materials and energy resulting from having to do corrective works,
- cost of repairs and removal of damage in the given system (less favorable than proper completion for the first time),
- additional production work,
- additional work done by technical supervision and administration,
- project and process changes,
- loss of production capacity,
- part of fixed costs of the subsystem incurred in stoppage, resulting from its failure to use (machines and appliances and employees),
- financial stoppages.

As *external costs* we can see:

- cost of removal of secondary disturbances in cooperating units,
- responsibility for the product (clients' complaints, warranty claims, insurances etc.),
- lack of orders (anti-advertising),
- further losses as a result of unrealized aims of the enterprise.

The costs of preventive action are the costs connected with trying to minimize the risk of projects or diversify portfolio risk at the level of the enterprise. They refer to:

- planning a seamless course of respective projects and portfolio,
- control of processes in terms of product quality (compliance with requirements – compliance with norms and clients' needs),
- maintenance of machines and production appliances and calibration of control-measuring devices,
- staff selection and training,
- choice of suppliers of production means,
- protection of good supply and storage conditions,

- controlling,
- control of research and development (R&D) programs.

In the enterprise there can be specified the following groups and sub-groups of total costs of risk:

- costs connected with products in the phase as follows:
 - planning new products:
 - costs of marketing research,
 - costs of own R&D experiments,
 - designing:
 - costs of product innovations,
 - costs of inadequate technical solutions;
 - manufacturing:
 - costs of bad assessment of indispensable resources (employees' work, quantity of materials, work efficiency of equipment),
 - costs of wrong assessment of realization deadlines;
 - distributions:
 - costs of off-target choice of transport means,
 - costs of ensuring the safety of load;
 - responsibility for product:
 - costs of ensuring the quality of products,
 - costs of warranty repairs;
- costs of wrong investment:
 - costs of wrong investment projects,
 - costs resulting from errors in business plans;
- ecological costs;
- costs of losses resulting from not taking action about:
 - investment,
 - restructuring (in terms of technology, organization, and management),
 - production;
- costs of risk management:
 - costs of administration,
 - costs of technical means used for monitoring risk,
 - costs of insurance against risk.

The mentioned above groups of costs can be mutually covered. Some items can also occur in a concrete enterprise, or in a given period of time.

One should also consider the fact that the costs of limiting risk should not exceed the value of damage, which can occur (damage in ma-

terial and non-material terms).

Rational process of risk management enables to find optimal solutions, being a kind of a compromise between insurance and leaving risk in own share.

This insurance program constitutes this compromise. Risk management is also a professional approach to insurance.

In a modern enterprise the level and structure of production costs very often decide about the market position. Maintenance of them at the proper level impacts break-even point and a competitive advantage of the organization. Currently, the reduction of costs is possible by drawing more attention to the costs of risk.

As previously stated, the costs of limiting risk cannot exceed the value of damage, which can occur. Sources of risk can be identified at the descriptive stage of a risk analysis, whereas setting the structure of these costs requires quantitative research. The assessment of costs and benefits enable to apply the aggregated measure to assess and compare the profitability of undertakings. ROI - Return on Investment - is a basic formula in this respect. The indicator is often applied while comparing profitability. It is worth emphasizing at this point that the assessment of profitability includes a multi-criteria analysis. A synthetic indicator, such as ROI, will not always constitute a good basis for making a decision about (or not) about a concrete variant of risk management in the enterprise.

The value of the company increases if the changeability of future results is limited and an increase in expected profits corrected by risk is ensured, and the application of proper methods of steering risk enables to increase the level of expected results with regard to risk (e.g. EaR, C-FaR etc.) [Michalski, 2005].

Conclusions

An adopted philosophy of the total risk management in the enterprise is based on the following statements:

- risks in different areas may be dependent on each other, hence there is a need for holistic risk management;
- in order to undertake some business with a high level of risk it is significant to be sure a company is able to pay for some possible losses – that is why risk has to be managed.
 - each time the selection of proper means should be the result of a detailed analysis of the effectiveness and costs of their introduction.

To sum it up it has to be said that improvement of the organization is a continuous search of the new organizational order. Current searches in this range concentrate around the questions of the risk connected with functioning the organization. The management by the risk is treated as the source of the competitive superiority of enterprises. The omnipresent risk should be perceived by economic individuals as the chance for these, which will approach to it in the pragmatic way, they will undertake the trouble of the sensible game with the risk, the aim of decrease of his negative results and assuring the economic success of their organization they will distinguish themselves from the competitors.

In order to identify the risk in the enterprise it is necessary to realize the places of the organization safety threats formation - both its subjective as well as objective side.

At the enterprises, taking into consideration the problems of the risk can be seen in a transition from a classic target function (the maximization of the profit) to the other target function, which takes into account the risk of the bankruptcy of the enterprise which is the minimization of the probability of the bankruptcy.

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