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RISK MANAGEMENT OF QUALITY MANAGEMENT SYSTEMS AT THE FOOD INDUSTRY EXAMPLE

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Abstract: *The article is a voice in discussion concerning the specific elements of risk management, particularly the identification and methods modeling of theirs to cut down the risk to the acceptable level.*
The specific elements of identification, evaluation and risks' monitoring in food enterprises, which are presented, in many sides have the universal assessment and may be used as a base to adopt by other organizations.

INTRODUCTION

Risk management is a rapidly developing discipline and there are many and varied views and descriptions of what risk management involves, how it should be conducted and what it is for. Some main elements in that, we focused in this article, to ensure that there is an agreed:

- process by which risk management can be carried out,
- organization effort for risk management,
- objective for risk management, in food industry but universal for different businesses.

There are many ways of achieving the objectives of risk management and it would be impossible to try to set them all out in a single paper. By meeting the various component parts of this article, albeit in different ways, different organizations will be in a position to interpret the risk management main elements. The article focused some best practice against which organizations can measure themselves. The described example concerns in the this article food industry, but has the universal view. The article recognizes that risk has both an upside and a downside.

RISK MANAGEMENT

Risk can be defined as the combination of the probability of an event and its consequences [1]. In all types of undertaking, there is the potential for events and consequences that constitute opportunities for benefit (upside) or threats to success (downside). Risk Management is increasingly recognized as being concerned with both positive and negative aspects of risk. Therefore this paper considers risk from both perspectives. In the safety field, it is generally recognized that consequences are only negative and therefore the management of safety risk is focused on prevention and mitigation of harm.

Risk management is a central part of any organization's strategic management. It is the process whereby organizations methodically address the risks attaching to their activities with the goal of achieving sustained benefit within each activity and across the portfolio of all activities.

Risk management should be a continuous and developing process which runs throughout the organization's strategy and the implementation of that strategy. It should address methodically all the risks surrounding the organization's activities past, present and in particular, future.

All elements of managing the risk are necessary and important, but there is only identification, description and partly assessment of risk below.

Risk identification sets out to identify an organization's exposure to uncertainty. This requires an intimate knowledge of the organization, the market in which it operates, the legal, social, political and cultural environment in which it exists, as well as the development of a sound understanding of its strategic and operational objectives, including factors critical to its success and the threats and opportunities related to the achievement of these objectives.

Risk identification should be approached in a methodical way to ensure that all significant activities within the organization have been identified and all the risks flowing from these activities defined. All associated volatility related to these activities should be identified and categorized.

Whilst risk identification can be carried out by outside consultants, an in-house approach with well communicated, consistent and coordinated processes and tools is likely to be more effective. [2,5]

Next step after the risk identification is the risk description. The objective of risk description is to display the identified risks in a structured format, for example, by using a table (see example – tab.1). The risk description table overleaf can be used to facilitate the description and assessment of risks. The use of a well designed structure is necessary to ensure a comprehensive risk identification, description and assessment process. By considering the consequence and probability of each of the risks set out in the table, it should be possible to prioritize the key risks that need to be analyzed in more.

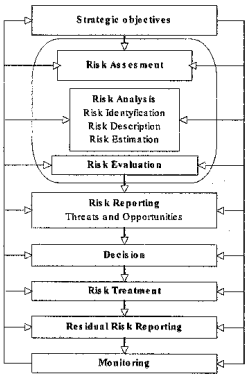

Figure 1. The Risk Management Process
Source: own study based on [2, 3, 4, 5]

Food industry risk identification and description – case study

Foodstuffs quality, especially their health safety, are the most important food attributes for modern consumers, the more so because bigger and bigger group of different foodstuffs is being perceived as a potential source of food poisonings and alimentary infections. Identification, description and risks assessment are the elements of strategy as well as organisation management's operations and important elements of risk management in the same time.

New pathogens and other hazards foodstuffs related unknown till now, microorganisms adaptative abilities, foreign trade increase, market centralization, expansion of firms activity and distribution ambits, changes of foodstuffs preservation methods, such as minimal processing techniques for example, socio-demographic reasons, i.e. advanced age people population increase are the most often indicated factors that influence foodstuffs safety in XXI century [7]. In his situation assurance of appropriate foodstuffs health quality dependent on nutritive

and non-nutritive ingredients content including these generating risk for human's health and potential presence of factors that endanger the health are the basic task for foodstuffs producers. The factor supporting this action is conducting the most detailed hazard analysis and health hazard assessment at almost every stage of foodstuffs production to decrease the hazards in the whole food chain.

Table 1. An example of hazard analysis and Critical Control Points identification in the process of shortcakes production - selected elements

Process stage	hazards	source, reason	prevention actions
Raw materials preparation	pathogenic microorganisms contamination	- not undertaking basic health and hygiene procedures by stuff - dirty devices - stale water, - eggs secondary contaminations - inadequate raw materials storage conditions	personnel trainings, following the rules of the GMP Codex , periodical water analysis, following the instruction of eggs breaking, personnel and accommodation hygiene state supervision
Mixing and/or making fluffy	pathogenic microorganisms contamination	- not undertaking basic health and hygiene procedures by stuff, - dirty devices	personnel trainings, personnel and accommodation hygiene state supervision
Portioning and forming	pathogenic microorganisms contaminations physical hazards contaminations	- not undertaking basic health and hygiene procedures by stuff, - not undertaking the GMP/GHP procedures by stuff	personnel trainings, personnel and accommodation hygiene state supervision, following the rules of the GMP Codex

At the stage of risk assessment hazard detection "D", a probability of its occurrence "P" and a significance for a client "S" by using the proper point scale are being considered at the same time. For an example see Table 2.

Foodstuffs contamination risk assessment should include:
– hazard identification – a factor indication that can be harmful for human's health,
– hazard assessment – quantity and quality study for the hazards
– risk (exposure) estimation – quantitive and qualitive risk analysis of factors, which can occur in the production process

– risk characteristics – gathering the results of the analysis described above to the quantity assessment of the occurrence probability of unfavorable interactions in the population.[7]

Nowadays HACCP seems to be the most effective system to ensure foodstuffs health safety. It covers the whole process starting from gathering row materials to end-user product consumption. HACCP is also used to eliminate a risk connected with foodstuffs contaminations before they appear. It is used to undertake reparation actions but always in time to not allow bad quality product appear at all, too. In a food industry plants HACCP is established separately and every time for the very product and production line.

The following describes an example analysis of hazards and Critical control points identification which is being used in a confectionary in Malopolska region.

Table 2. Hazards significance for a client's scale point

Significance	Description	Scale
Minor	it can or cannot be noticed only by a consumer and is only a slight inconvenience	1
Major	decreased quality is unimportant in for a health, but continuously appearance can put a human health at risk	2
Excessive	Appearance can be dangerous for health, can lead to its useless for a consumer	3
Health and life in danger	Every appearance causes a possible danger for either health or life	4

Hazard importance assessment "H" is made according to the following equation: H = D x P x S. If H>10 CCP has to be established.

CONCLUSION

All elements of Risk Management must be integrated into the culture of the organization with an effective policy and a programme led by the most senior management. It must translate the strategy into tactical and operational objectives, assigning responsibility throughout the organization with each manager and employee responsible for the management of risk as part of their job description. It supports accountability, performance measurement and reward, thus promoting operational efficiency at all levels.

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LABELLING OF CHEMICAL PRODUCTS IN EUROPE AND UKRAINE

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Abstract: *This work represents the results of the research made by the authors on the problems of classification and labeling of chemical products. It is an overview of European rules and regulations on manufacture, transportation and use of chemicals. Special attention is paid to health and environment impact of dangerous substances and preparations, as well as their safe use. Perspectives of the development of national program to ensure safe use, transport, and disposal of chemicals in Ukraine are analyzed.*

INTRODUCTION

Chemicals are fundamental to our everyday lives. Not only are they the basis for the fertilisers, pesticides and food additives that improve our nutrition and for the pharmaceuticals that benefit our health, they are also essential for the production of many of the man-made materials on which our standard of living now depends. [1]

The use of chemical products to enhance and improve life is a widespread practice worldwide. The production and use of chemicals are fundamental factors in the economic development of all countries, whether they are industrialized or developing. Preparations – mixtures of chemical substances – make about 95% of chemicals on the market. They include:

- industrial chemicals, such as solvents and coatings;
- petrochemicals, such as fuels and lubricants;
- agricultural chemicals such as pesticides;
- consumer products, such as detergents and disinfectants, and many others.

The majority of these chemicals are of low concern for human health or the environment, but a significant proportion has properties which are hazardous to people and the environment. The first and most essential step leading to safe use of