

## Risk Identification and Assessment to Enhance Quality Management

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### ABSTRACT

*A quality management system (QMS) in any operating organization or company aims to have a process approach and monitor all the company's activities (information, marketing, logistics, outsourcing, social). Any quality management system can be upgraded and improved through risk assessment.*

*Keywords: quality management, risk assessment, risk prevention, indicators.*

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### INTRODUCTION

What is required by any QMS is to achieve effectiveness with a focus on continuous improvement, by analysing data, facts, information and the results of the company's activity [1 - 3]. Risk assessment in any enterprise is usually based on various indicators, including:

- Financial indicators: such as working capital, profitability, loan debt and other financial indicators.
- Operational indicators: production efficiency, equipment utilization level, production errors and other operational parameters.
- External factors: political stability, changes in legislation, competitive environment and other external factors that may affect the activity.
- Recognition and management indicators: customer satisfaction, brand reputation,

employee loyalty and management effectiveness.

- Technological indicators: innovation, level of security and technology, degree of information security and other technological aspects.

All these and various other indicators can help the enterprise to assess its risks and take measures to manage them.

### EXPERIMENTAL

For the purpose of the present study, quality standards and risk management standards [4, 5] were reviewed and analysed to be used for future risk prevention and risk minimization activities. The quality risk management activity is undertaken by interdisciplinary teams in the department of quality, in cooperation with business development, logistics, human resources and statistics.

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Product quality risk can be detected, for example, by identifying inconsistencies in the production process, which can lead to customer dissatisfaction, deterioration of the company's reputation or even legal consequences. It can be related to various factors such as design, raw materials, manufacturing processes, quality control, etc. Minimizing this risk usually involves careful planning, use of appropriate technologies and quality management systems [6].

## RESULTS AND DISCUSSION

Product quality risk management in a chemical industry enterprise is a process in which product quality is monitored throughout its entire life cycle, tracking and analyzing all the existing risks in any process in the company aiming at reducing the negative effect of their possible occurrence or preventing them. Risk management is an ongoing process, and a procedure must be implemented to regularly monitor risks. Risks associated with system events must be continuously revised. The frequency of risk management monitoring is determined by the degree of risk (Fig.1).

The following measures can be mentioned so as to reduce the probability of decreasing the quality of the production: strict compliance with the requirements and recommendations for effective work; strict regulation of management responsibilities; implementation of measures to identify opportunities for quality improvement; change management and product defect deviation procedures; implementation of preventive and corrective actions; careful documentation of information; complaint management and periodic self-inspection. Several groups of indicators are examined in more detail.

### Financial indicators

To prevent the financial risks to the quality, the following approaches can be applied:

- Investment opportunities research: conducting thorough research and analysis of investment opportunities before investing funds.



Fig. 1. Quality Risk Management (QRM) can help reduce risk and keep it at a manageable level by monitoring the risks on a regular basis.

- Diversification of income: if possible, to diversify sources of income to reduce dependence on one source.
- Compliance with financial rules: avoiding unnecessary risks by following good financial practices and risk management rules.
- Investment in training: it is necessary to invest time and resources in training and development of the personnel to upgrade knowledge and skills in managing financial risks.
- Diversification and portfolio management: it means investing in different assets and instruments, in line with the company's financial goals and risk tolerance, in order to minimize risk. On the other hand, cost optimization and debt management are needed to reduce financial risks and improve the quality of the company's portfolio.

### Operational indicators

To reduce the risk to the quality based on operational indicators, the following strategies can be applied:

- Process automation: developing and

maintaining operational process automation software solutions that can reduce human error and improve effectiveness.

- Imposing effective procedures: it is necessary to agree on clear and effective work procedures that facilitate the performance of operational tasks as to reduce the risk of malfunctions.
- Continuous monitoring and analysis: it is necessary to perform systematic monitoring and analysis of operational indicators to detect problems in a timely manner and take corrective action.
- Staff training: organizing staff training to acquire and cultivate knowledge and skills to achieve high operational standards and reduce the risk of errors.
- Strategic planning: developing strategic plans for operational activities that specify the goals, processes and resources needed to achieve high performance.
- Maintaining reserves: provision of reserve resources and capacities to allow responding to unexpected problems or events without disrupting operational activity.
- Feedback system: introduction of a system for collecting feedback from customers, partners and employees to identify potential problems and implement measures to eliminate them.

### **External indicators**

To minimize the risk to quality based on external indicators such as customer satisfaction, competitive environment and political stability, the following approaches can be applied:

- Systematic quality management: building and implementing a quality management system that includes standardized procedures and practices to ensure the quality of products and services.
- Follow up on customer feedback: Actively follow up on customer feedback and respond quickly to issues or complaints to maintain a high level of customer satisfaction.
- Maintaining good stakeholder relationships:

focusing on long-term relationships with customers, suppliers, investors, regulators and other stakeholders to ensure a climate of trust and loyalty.

- Continuous improvement: adapting and improving processes and products using external and internal analysis to identify opportunities for optimization.
- Communication and transparency: maintaining open and effective communication with stakeholders regarding operations, products and services, as well as the company's quality improvement efforts.
- Risk management: identifying potential risks to quality and taking measures to manage and mitigate them.
- Investment in training and development: introducing and implementing staff training and development practices to ensure that employees not only understand the importance of quality but are also competent to achieve it.

### **Technological Indicators**

- To minimize the risk to the quality of the products based on technological indicators, the following strategies are important:
- Timely update and/or maintenance of the technological infrastructure: investment in the modernization of hardware, software and other technological solutions is necessary to maintain and guarantee the security, efficiency and up-to-dateness of the infrastructure.
- Backup and recovery plans: Backup and recovery plan scenarios should be prepared in case of technical problems or accidents to help quickly and efficiently restore production activity.
- Vulnerability testing: Regular vulnerability testing should be conducted to identify potential security issues that can be dealt with in a timely manner without allowing abuse and/or damage.
- Training of the staff: Regular training of personnel on the correct use of technological

resources, as well as on best practices in the production process.

- Investing in cyber security and using cloud services: regularly reviewing and updating security policies, as well as using cloud services for data storage and processing, which can provide greater security and flexibility to the enterprise infrastructure.
- Monitoring and analysis: Using systems to monitor and analyse technological indicators to detect and root out problems before they become serious incidents.

#### **Management performance indicators**

- To reduce the risk to the quality of the products according to management performance indicators, the following steps can be taken:
- Building an effective management system: it is necessary to develop and implement a management system that covers all aspects of production and guarantees the effectiveness and quality of the processes.
- Use of Key Performance Indicators (KPIs): it is necessary to identify and monitor key management performance indicators to help evaluate and/or improve the production process.
- Continuous process improvement: it is necessary to regularly analyze production processes and find ways to optimize and improve their effectiveness and efficiency.
- Staff training and development: investment in staff development to ensure they understand best management practices and can apply effective methods to manage production processes.
- Use of production management technologies: implementation of modern production management technologies, such as warehouse management systems, production lines and production quality management systems.
- Regular monitoring of production data and results to detect problems or discrepancies in a timely manner and take the necessary corrections.
- Collaboration with suppliers and partners to

ensure that all participants in the manufacturing process adhere to best management and quality practices.

#### **CONCLUSIONS**

Risk analysis and assessment is a process in which risks are analysed in order to determine the likelihood that they will materialize and the possible consequences on the respective production and products. A very important fact is that the specific moment of occurrence of the risk influences the consequences it will have. Therefore, determining a quantitative assessment of each risk on the basis of which they can be prioritized according to the profile and objectives of the enterprise is essential and it will be a continuation of our current work.

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