

POLITECHNIKA ŚLĄSKA
WYDZIAŁ ORGANIZACJI I ZARZĄDZANIA
KATEDRA EKONOMII I INFORMATYKI



ROZPRAWA DOKTORSKA

mgr inż. Magdalena Marecik

**Model zintegrowanego systemu zarządzania jakością,
bezpieczeństwem i środowiskiem z zastosowaniem
metodyki szacowania ryzyk i szans.**

Promotor:

dr hab. inż. Mariusz Ligarski, prof. PŚ

Zabrze, 2024

SUMMARY

A model for an integrated quality, safety and environmental management system using a risk and opportunity estimation methodology.

Magdalena Marecik, M.Sc.

The broader management of an organization is becoming more and more challenging for companies that strive to achieve the highest position in the market, which is to ensure competitiveness and cooperation with stakeholders. Organizations are aiming for continuous improvement, which is to ensure that they provide services at a high level, with the highest quality, while guaranteeing a safe working environment and eliminating environmental impact. In order to meet the above assumptions, companies seek optimal solutions to meet the requirements of stakeholders, including customers, communities, government agencies and other organizations that analyze the implementation of assumptions aimed at achieving goals in the areas of quality, safety and the environment.

Thus, it is found that organizations seeking to ensure the right management style are choosing to implement integrated systems built on ISO 9001 (quality), ISO 45001 (occupational health and safety) and ISO 14001 (environment). It is the desire to strive for excellence, continuous development and a focus on stakeholder needs, combined with the business side, that influence organizations, showing them the path of action in the area of integrated management systems. The continuous search for the best possible solutions has been influenced by the significant change in the aforementioned standards, which has been oriented toward the implementation of estimating risks and the resulting opportunities. Thus, organizations attempted to fully apply estimation methods in conjunction with the maintenance of integrated systems, which did not yield 100% compliance, ultimately affecting the lack of full system integration between quality, safety and environmental management. These activities resulted in further development and search for solutions, including targeting a series of scientific studies, enabling the realization of assumptions for full integration with the application of risk and opportunity management.

The considerations that were included in this dissertation influenced the achievement of the main objective, the research, i.e. the development of a model for an integrated system of quality, safety and environmental management using the methodology of estimating risks and opportunities, and the theoretical and cognitive as well as empirical and methodological objectives, which were defined as follows:

I. Theory-cognitive objectives:

1. To identify the level of integration of quality, safety and environmental management systems in selected companies in the energy industry;
2. To identify methods of estimating risks and opportunities and the degree of their application in the surveyed company;

II. Empirical and methodological objectives:

1. Model development for estimating risks and resulting opportunities, ensuring the application of the indicated model in the integrated management system of the organization.

In addition, utilitarian objectives were identified, :

1. To implement the elements of the developed integrated management system in the areas of quality, safety and environment in selected companies in the energy industry;
2. Implementation of the methodology for estimating risks and opportunities in selected enterprises in the energy industry.

Research methods were used to achieve the main objective and specific objectives, which include:

- a) Critical analysis of the literature;
- b) Survey research (survey questionnaire);
- c) Expert interviews (interview questionnaire)
- d) Multiple case studies.

The dissertation was developed and divided into four chapters.

The first chapter introduces the topic of the dissertation, indicates the direction of the research along with a presentation of the subject and research objectives. This chapter also initially describes the research methodology used to solve the research problems and the possibility of their elimination through the use of appropriate tools, including the developed models, which was developed in the later chapters of the dissertation.

In the second chapter, the author attempted to identify management systems including quality, safety and environment, with the determination of the level of system integration. It is also important to emphasize the presentation of the level of implementation and actual use by

the entities of the model and the method of estimating risks targeted for the indicated business needs in the above-mentioned system areas. Also presented are areas that are not functioning as intended when attempting full system integration using risk and opportunity estimation.

The third chapter describes the area of the research conducted, it mainly includes the characteristics of the study group, presents the empirical research carried out, the surveys conducted (including expert interviews conducted with the study parties). This chapter contains important information indicating the developed model of an integrated quality, safety and environmental management system using the method of estimating risks and opportunities, with the aim of attempting full system integration, which has so far been a problem in the surveyed companies in the energy industry, but also entities in other areas of the industry.

The final part of the thesis is the fourth chapter, which is a summary consisting of conclusions, further process recommendations with the possibility of implementing the proposed models in the integration and estimation of risks and opportunities, functional assumptions and also orientation for further research.

In conclusion, the proposed topic is important, both scientifically, in which the research gap in methodologies focused on risk management and the resulting opportunities is indicated, but also in terms of the application of an integrated management system that guarantees full synergy in the areas of quality, safety and the environment. Thus, analyzing both the research problems, but also the practical application, the author confirmed the need to try to realize the development of a model that meets the expectations of the organization, ensuring that the research gap is filled.