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RISK MANAGEMENT IN HIGHER EDUCATION INSTITUTIONS: EXISTING RESEARCH FRONTIERS AND THEIR APPLIED EXTRAPOLATION

Abstract: This article focuses on the analysis of published research on risk management in higher education institutions. The authors believe that for effective implementation of risk management in Kazakhstani universities and the development of a concept for its scientific and methodological support, a systematic and large-scale research effort is necessary. This includes identifying the categorical framework of risk management in higher education. In this context, the authors conducted a bibliometric analysis using the Scopus database, as well as the methodological approach and capabilities of the VOSviewer software tool. The study of sources on the issue of risk management in universities revealed insufficient development of this topic from methodological positions and in the applied context. Additionally, the bibliometric analysis not only identified and visualized current research directions in this field but also highlighted trends for future research in the subject areas of "risk management," "university management," and "risk management in higher education institutions."

Keywords: risk management, university management, higher education, risk management in higher education, quality assurance, bibliometric analysis.

Introduction

One of the key directions in the modernization of the higher education system is ensuring the autonomy and sustainable development of universities, considering the following specific factors of the modern educational sphere. First, the characteristics of educational services (including in the higher education system) as mixed public goods with high social significance, the multifaceted nature of their positive external effects, determining the need for both state participation in their provision and market-private mechanisms for their production (Samuilson, 1964; Masgrave & Masgrave, 2009; Drucker, 1999; Stiglitz, 1997; Zhiltsov, 1995). Second, the transformation of the higher education sector as a system for reproducing intellectual capital and as a key component of the "knowledge economy" (Deming, 2006; Makarov & Kleiner, 2007; Stepanova & Manokhina, 2008; Webster, 2004; OECD, 2011; Glukhov et al., 2003; Tishina, 2012; Lukichev, 2007) with a model of "lifelong learning" (Education Throughout Life, 2019; Resolution of the Government of the Republic of Kazakhstan, 2021; Bochkov, 2004) and an innovative spiral of "education – research – innovative production" (Avdeev & Peshina, 2014; Smorodinskaya, 2011; Leydesdorff, 2012; Lundvall, 1992; Bondarenko et al., 2018). Third, the multiplicity of stakeholders in the educational process (such as customers – students, their parents, government agencies, representatives of the business sector as employers; direct consumers – students; providers – educational institutions) with specific subjective characteristics, motivational determinants, behavioral models, and divergent interests, complicating the process of providing educational

services, including in terms of determining the clear goals, development trajectories, and financial needs of universities.

The mass nature of modern higher education, forming the ability to acquire new knowledge, increasing the requirements for the rapid renewal of this knowledge, strengthening the requirements for the practice-oriented nature of educational programs and their focus on professional standards, the need for active commercialization of the results of scientific activities in close connection with the business sector of the economy, urgently require the strengthening of the organizational culture of universities, also necessitating the implementation of new methods and tools for risk-oriented university management (Filimonova, 2018; Demenenko et al., 2018).

Establishing an effective risk management system in a university is a crucial aspect of its work, as it contributes to the realization of the strategy of sustainable, dynamic, and progressive development of the university, achieving high standards of the scientific and educational process, improving academic policy, organizational culture, and ultimately – enhancing its customer orientation, competitiveness, reputation, and prestige.

An effective university risk management system implies the presence of a multi-functional system of socio-economic communications between all internal and external stakeholders of the university, where students, after completing their studies, maintain constant contact and interaction with the institution, contributing to its innovative growth, knowledge scaling, strengthening the university's prestige, and its competitiveness in the educational services market.

At the same time, despite the intensification of research in the field of risk management in domestic higher education, as well as the developing practice of forming mechanisms and elements of risk management in Kazakhstani universities, it should be concluded that the state of this issue is far from reaching institutional maturity. Therefore, for the effective implementation of risk management in Kazakhstani universities and the development of a concept for its scientific and methodological support, systematic and large-scale research work is necessary, including identifying the categorical framework of risk management in higher education based on bibliometric analysis of published research.

Methods and organization of the study

The design of this study, including the methods and procedures used, involves a bibliometric analysis of published research on risk management in higher education institutions (using the Scopus database), utilizing the methodological approach and capabilities of the VOSviewer software tool (Van Eck & Waltman, 2010; Van Eck et al., 2010). Bibliometric analysis was conducted based on the Scopus database, one of the most well-known and authoritative collections of bibliographic and abstract scientific materials in the world. This database provides extensive search capabilities, user-friendly search and analytical tools, global thematic coverage with daily updated information, and a rigorous methodological approach to ensure the quality of published articles.

The research methodology includes the following stages:

1. Formation of a sample of published scientific works in the Scopus database on the following research frontiers: "risk management," "university management," and "risk management in higher education institutions;"
2. Identification of publication dynamics on risk management issues in higher education institutions in the Scopus database from 1987 to 2024;
3. Construction of a scientific map of thematic clusters based on the keywords used in existing studies on risk management in higher education institutions, identifying the network of connections between the studied terms and their genesis;
4. Evaluation of the analysis results, identifying the most important scientific trends and

directions in this research area.

Results

1. Formation of a sample of published scientific works in the Scopus database on the following research frontiers: "risk management," "university management," and "risk management in higher education institutions."

At this initial stage of the study, we identified published works in the Scopus database in the following subject areas: "risk management," "university management," and "risk management in higher education institutions."

The analysis showed that in the Scopus database for the period from 1990 to 2023:

- There were 4,899,901 publications on management issues, including 1,760 on university management, or 0.04% of all management works.

- There were 150,093 publications on risk management issues, including 44 on risk management in higher education institutions, or 0.03% of all works on risk management.

These indicators suggest that the research space on university management issues in general, and particularly on the implementation of risk management in higher education institutions, is currently narrow and underexplored, with a lack of reliable and substantiated primary sources. Therefore, research in this underexplored sector is conducted more intuitively rather than based on proven methodological and applied "evidence bases."

2. The analysis of sources on the issue of risk management in higher education institutions revealed insufficient development of this topic, both from methodological positions and in the applied context. At the same time, there is a need for bibliometric analysis, which not only allows for the identification and visualization of current research directions in this field but also helps to determine trends for future research on this topic. Therefore, the goals of this bibliometric analysis included:

- first, determining the current level of scientific interest in the issues of risk management in higher education;

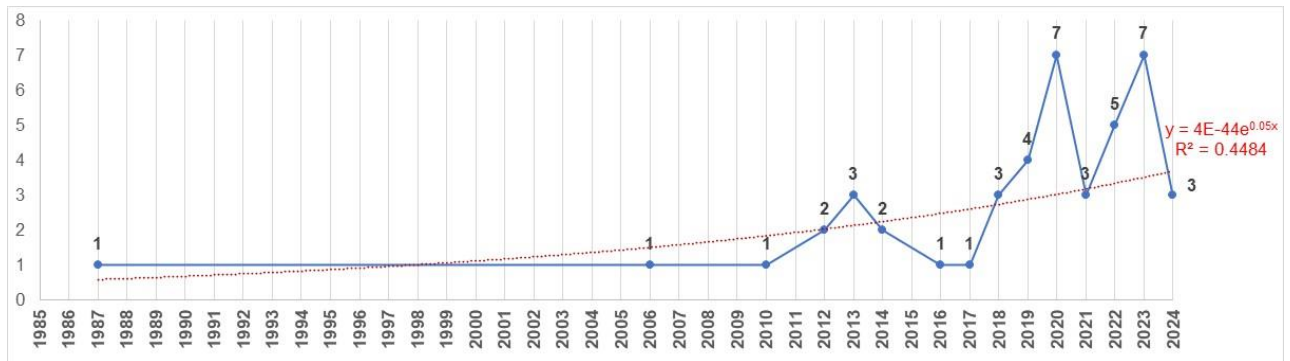
- second, identifying the most relevant research directions in this area;

- third, revealing the main trends in further research on risk management in higher education institutions.

The bibliometric analysis of the dynamics and structure of existing research on risk management in higher education institutions was conducted using VOSviewer software, based on the Scopus database. The key search term was "risk management in university." Based on this search query, the Scopus database provided 44 works, starting from 1987 to 2024. The increase in the number of works over the last 5 years, starting from 2018, reflects a growing interest in the topic of risk management in higher education institutions, with a particularly sharp increase observed in recent years (Figure 1). The trend line is exponential, with a coefficient of determination (R^2), also known as the "goodness of fit," equal to 0.448.

Figure 1

Publication activity in research on risk management in higher education institutions in the Scopus database from 1997 to 2024

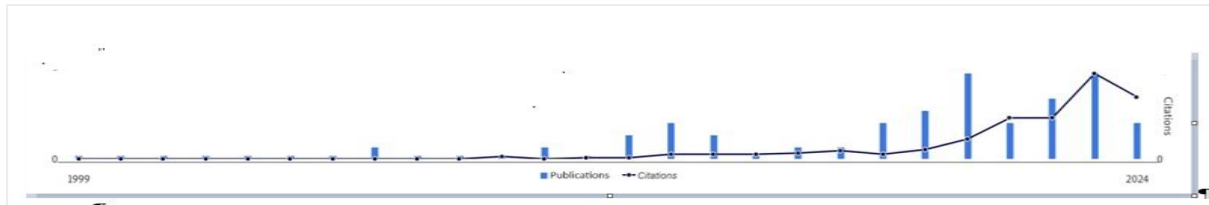


Note: Scopus database

This trend is also observed in the number of citations of articles on the studied problem (Figure 2). Currently, the average number of citations per work in this area is 9. Moreover, earlier published studies have a large number of citations.

Figure 2

Dynamics of citations of publications on risk management in higher education institutions in the Scopus database from 1999 to 2024



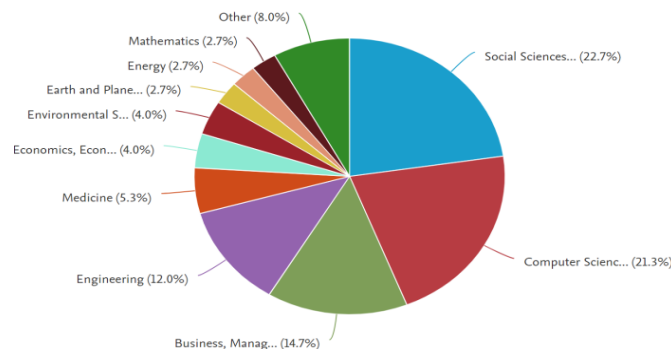
Note: Scopus database

Discussion

The results of the analysis demonstrate the interdisciplinary nature of existing research on risk management in higher education, with studies being published across various categories within the Scopus database (Figure 3). The highest number of publications falls under the category "Social Sciences" (17 publications, or 22.7% of all published works).

Figure 3

Distribution of research on risk management in universities by Scopus categories

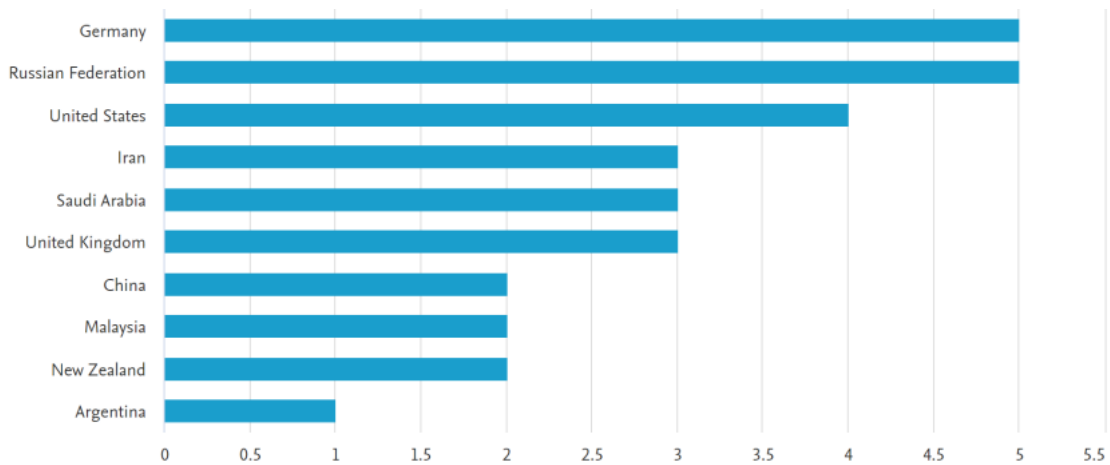


Note: Scopus database

The geographic distribution of the published works in the Scopus database on risk management in higher education institutions shows a concentration of scientific interest in this issue in Germany, Russia, and the United States (Figure 4).

Figure 4

Geographical coverage of research on risk management in universities

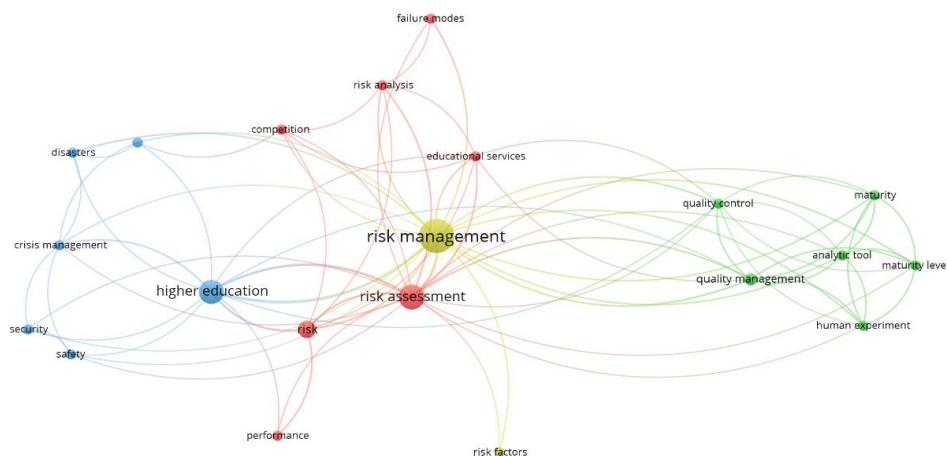


Note: compiled by the authors based on the Scopus database

A significant phase of the research was the construction of a scientific map of thematic clusters based on the keywords used in existing studies on risk management in higher education institutions, identifying the network of connections between the studied terms and their genesis. For the purposes of terminological mapping using the VOSviewer software tool, the Co-occurrence: Author keywords method was applied, based on which a specialized thesaurus of 30 keywords was compiled, grouped into 4 thematic clusters by their semantic proximity, identity, and intensity of joint use (Figure 5).

Figure 5

Bibliometric scientific map of thematic clusters of existing research on risk management in universities in the Scopus database



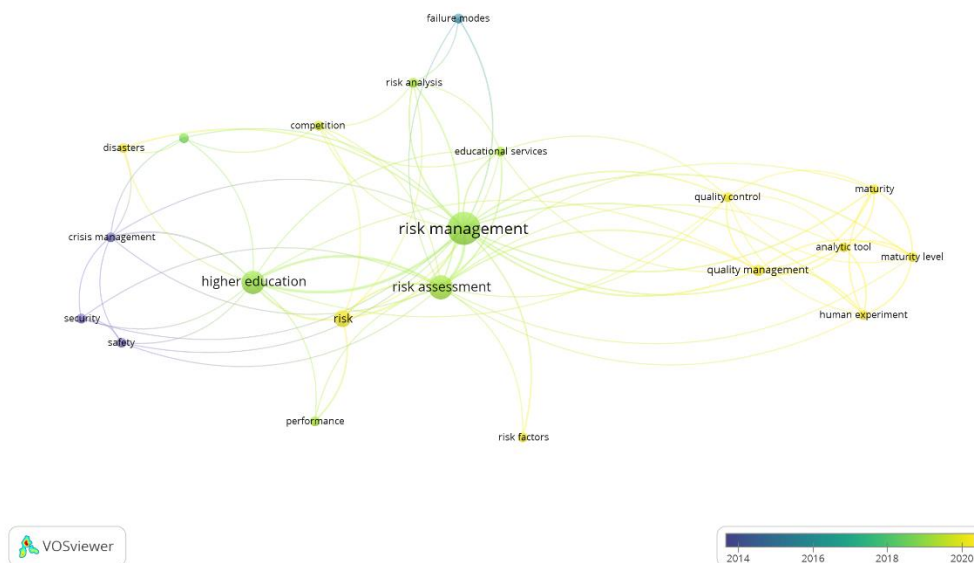
Note: compiled by the authors based on the Scopus database

In the presented bibliometric cluster map of research on risk management in higher education institutions (Figure 5), the thematic clusters are highlighted in different colors, with the size of each keyword label (node and font size) reflecting the strength and frequency of its connection with other keywords ("total link strength"). The lines between concepts represent the relationships between them and their joint use ("link strength"). Keywords in Figure 5 are depicted as circular areas. The larger the circle, the higher the frequency of joint use of the concept, and the network lines represent the connections between these concepts. A content analysis of the keywords in the 44 selected publications allowed the identification of 4 interconnected conceptual clusters, which we provisionally labeled: "Risk Factors in University Risk Management" (yellow cluster), "University Risk Assessment" (red cluster), "Crisis Management in Universities" (blue cluster), and "Quality Management in Universities" (green cluster).

We then examined the distribution of keywords over time, according to the degree of their development in the selected studies dedicated to risk management in higher education institutions (Figure 6). The closer to purple and blue, the "older" the research, and the closer to green and yellow, the more recent. The results indicate that in recent years, there has been a shift in scientific interest from crisis management issues in universities to questions of strategic risk management and assessment in the context of quality management in higher education.

Figure 6

Distribution of keywords by time in existing studies on risk management in universities, according to the Scopus database

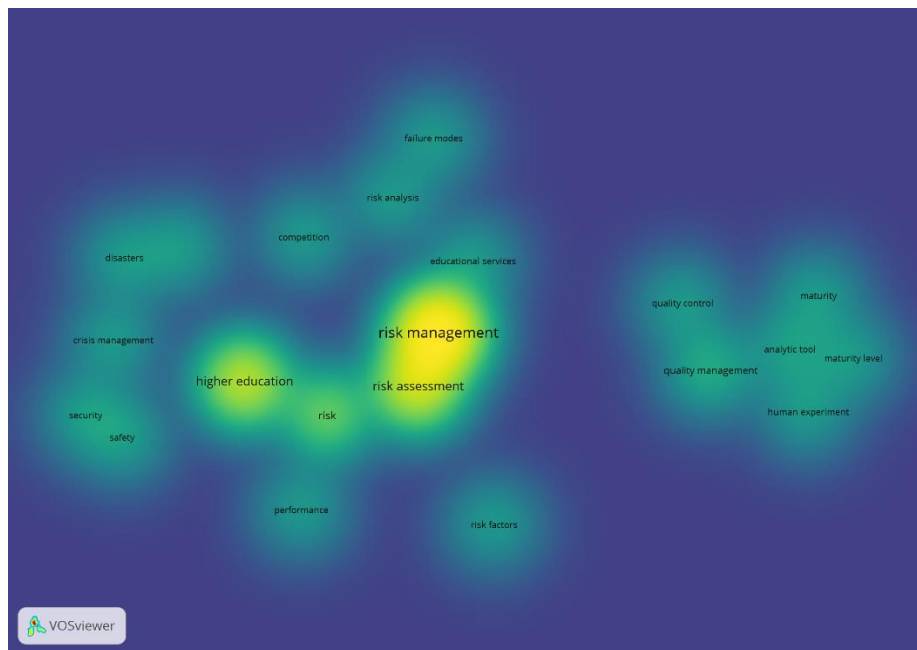


Note: compiled by the authors based on the Scopus database

Additionally, "hot areas" were identified in studies on risk management in higher education institutions, i.e., the most relevant concepts with a significant number of published articles (Figure 7). These areas on the bibliometric map, represented in a more intense yellow color, contain the highest number of scientific publications, particularly related to the issues of university risk assessment and identification.

Figure 7

Current topics ("hot areas") in existing research on risk management in universities in the Scopus database



Note: compiled by the authors based on the Scopus database

Conclusion

Thus, the conducted research on the bibliometric analysis of published studies on risk management in higher education institutions, based on the Scopus database, allowed us to:

1. Form a relevant sample of published scientific works on risk management in higher education institutions from the Scopus database;
2. Identify the dynamics of publications on risk management issues in higher education institutions in the Scopus database from 1987 to 2024;
3. Map thematic clusters based on the keywords used in existing studies on risk management in higher education institutions, identifying the network of connections between the studied terms and their genesis;
4. Identify the most important scientific trends and directions in this research area, as well as the concentration of scientific interest within four research clusters: "Risk Factors in University Risk Management," "University Risk Assessment," "Crisis Management in Universities," and "Quality Management in Universities."

Within the framework of this study, an analysis was conducted on the research frontier of risk management in higher education and the categorical structure of its framework based on a review of existing studies in this subject area, identifying dominant trends and benchmarks. Overall, the problem of building an effective risk management system in higher education institutions is relevant across the global educational landscape. However, in the context of post-Soviet higher education systems, this issue is not at the forefront, although some aspects of the experience of developed countries in this context are being utilized. The systemic implementation of measures to introduce risk management in universities is hindered by qualitative differences in our socio-economic environment. Higher standards of higher education quality, a developed organizational culture of top foreign universities, a high level of university intellectual capital, and the high scientific and educational potential of developed countries allow them to more effectively structure and expand risk management mechanisms in higher education. At the same time, it is important to understand that systematic work by a

university on the implementation of an effective risk management system is necessary for any higher education institution for further dynamic and progressive development and the fulfillment of its social mission.

The study allowed us to formulate the following recommendations for improving risk management in universities:

- Increase the interest and involvement of university leadership and its structural units in creating an effective risk management system;
- Develop and adopt principles and a general concept of strategic and operational risk management in universities;
- Establish specialized risk management departments in universities and ensure their effective interdepartmental interaction within the framework of general mechanisms for ensuring the quality of higher education.

Funding Information

This article was prepared within the framework of the project funded by the Committee of Science of the Ministry of Science and Higher Education of the Republic of Kazakhstan (IRN grant No AP19679435 - Scientific and methodological support of the process of implementation of risk management in higher education institutions of Kazakhstan).

Conflict of Interest Statement

The authors declare no potential conflicts of interest regarding the research, authorship, or publication of this article.

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