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THE INTERRELATION BETWEEN THE “QUINTUPLE HELIX” MODEL AND ESG PRINCIPLES IN THE CONTEXT OF THE INNOVATIVE DEVELOPMENT OF THE REPUBLIC OF KAZAKHSTAN

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ABSTRACT

This study explores the integration of the "quintuple helix" model and esg (environmental, social, and governance) framework for sustainable business development, both critical for improving business processes and fostering systematic analysis. The research aims to reassess these frameworks and propose an innovative n-model of management. Validity is confirmed through analysis of kazakhstani and international literature, practical testing, and implementation of findings in real-world contexts.

The purpose of the study is to review and rethink approaches to the formation of the “five helix” and esg with the development of prerequisites for the development of the n-model of management.

Research methodology. Qualitative methods were employed, including observation of processes in natural environments and focus group discussions to analyze the significance of the "quintuple helix" model and esg transformation. Theoretical generalization identified commonalities and differences between the frameworks, highlighting priority directions for further research.

Originality (value) of the research. The "quintuple helix" model emphasizes dynamic knowledge exchange within a nation for sustainable development. Esg focuses on environmental responsibility, social accountability, and robust corporate governance. Both concepts are essential for addressing issues like low management quality and insufficient decision-making systems in kazakhstan.

Results of the study. The significance of the results and conclusions of the study lies in clarifying the characteristics and conditions that complicate innovative interaction. The five spiral model and the existence of prerequisites for adapting the esg education model show the qualitative changes that the relationships between participants in kazakhstan's innovative development are undergoing. The study concludes that the integration of the two concepts contributes to the development of the n-model of management, improving interaction between participants in the innovation process.

Keywords: state, research institutes and universities, human and societal needs, information interaction, social aspects, environment, corporate governance

INTRODUCTION

The issue of interaction between the state, universities, businesses, and society in the context of innovative development and sustainable business growth through esg cooperation has received significant attention, as evidenced by various theoretical and empirical studies by scholars from both near and far abroad. The early 1970s marked the beginning of considering not only economic but also social and environmental factors. For example, in the *global risk report* by the world economic forum in 2013, the primary global risks highlighted were economic, social, and geopolitical. However, by 2024, environmental risks had taken precedence, followed by technological and social risks [1]. This shift demonstrates changes in risk perception and an increased understanding of the importance of incorporating non-financial factors to ensure sustainable growth.

These changes are explained by an increased awareness of resource limitations and the necessity for a balanced approach to development. During the industrialization period, companies sought to maximize resource utilization, focusing solely on economic prosperity. This approach led to global challenges such as resource depletion and climate change.

In the context of rapidly emerging multi-source data on the relationship between participants in innovative development, studies have previously been conducted to establish a dialogue between participants in the “quintuple helix” and esg values. The dialogue between which is determined by the gap between the real sector of the economy, the scientific and educational sphere and the interests of society as a whole. These problems are reflected both in the messages of the president of kazakhstan, and a systemic analysis is being conducted in the reporting materials of the country's innovative development. [2, 3]. Kazakhstan's position in the gii ranking currently shows growth in 2024 – 78th place, whereas kazakhstan ranked 81st in 2023 and 83rd in 2022, which demonstrates the existence of systemic problems in the country's innovative development [4]

The research problem is to analyze the issues of the “quintuple helix” and esg values, which play a fundamental role in global and national development, representing a comprehensive approach to sustainable progress. Environmental concerns, social responsibility, and corporate governance (esg) have become integral parts of corporate strategies. They influence decision-making processes, investment attraction, and reputation building. The relevance of the “quintuple helix” and esg values is determined by the following reasons:

The implementation of innovations as a multifaceted process is a multidimensional, qualitative, and effective transformation in the interconnection of all stakeholders involved in the innovation process;

The accumulation of eco-social development issues, where on one hand these issues serve as a source generating knowledge and innovations, and on the other hand, they are the domain in which researchers and innovators focus their efforts to bring about change;

Current trends and challenges are being taken into account within the framework of economic modernization, including the implementation of digitalization, high technologies, automation, and artificial intelligence. Within this framework, the “fivefold spiral” is responsible for the need to acquire “rapid knowledge,” maintain qualifications, and ensure their alignment with labor market demands;

The transition of the national economy to the concept of a “green” economy highlights ecological issues, climate change, social problems, and is influenced by the presence of economic crises. This approach considers the “fivefold spiral” concept as a tool for achieving stable growth while taking into account the interests of society and the environment.

The aim of the research is to identify and evaluate the cause-and-effect relationships in order to identify the concept of the fivefold spiral and esg transformation in the context of innovative development in kazakhstan. The article examines the issues related to the interdependence of the concept of the “fivefold spiral” and the principles of esg transformation in education:

- The approaches to the formation of the “fivefold spiral” model have been studied, which illustrates the qualitative changes in the interrelationships of the participants in the innovation process;
- The principles of esg management have been analyzed, which generate new social patterns, restructure business and management models, and indicate the extreme interconnectedness of the world.

The interdependence of the two concepts leads to the emergence of a new level of development and social acceptance, helping to create a fair and transparent business. The expected results of the study are the identification of prerequisites for the adaptation of the esg education model in the transformation of universities as a vector of sustainable development.

MAIN PART OF THE RESEARCH

Methodology. In our opinion, there is no all-encompassing theory of the "five-spiral" actors and esg, because there is no single management and regulation model for innovation systems. The methodological foundation of the research was based on approaches to studying the points of intersection between the two models within the education system. The research utilized methods of scientific cognition, such as the method of analyzing dynamic series, graphical method, and the method of theoretical generalization.

To study the approaches to management in innovative development, the method of theoretical generalization was used – a scientific method that allows identifying the common features and properties of the studied process. The method of theoretical generalization helped to identify the differences in the argumentation of the substantive characteristics of these categories in developed countries and in kazakhstan. It also contributed to the identification of key research directions in the issues of the development of the "five-spiral" actors and the criteria of the esg model, as well as the determination of the essence and content of these definitions.

The "five-spiral" model examines the interaction between the state, business, science, civil society, and the environment, with the key premise being the development of sustainable development goals declared by the un general assembly in 2015. The esg model is based on a set of rules and approaches to business practices that promote its sustainable development. The esg concept includes three criteria: the environmental (e) criterion, which determines how a company acts as a steward of nature; the social (s) criterion, which demonstrates the company's approach to employees, suppliers, customers, and partners; and the governance (g) approach, which concerns company leadership, executive compensation, audits, internal control, and shareholder rights. The goal of esg is defined as improving societal loyalty and creating sustainable, long-term relationships with customers. It is worth noting that adherence to esg principles offers companies certain advantages from the government, such as subsidies, special loan conditions, customer loyalty, and attractiveness for employees.

The reliability and validity of the research results cannot be unequivocal. The research results are based on conceptual and qualitative analysis, drawing on existing literature and theoretical interpretations of the «five-spiral» concept and the esg concept in the innovative development of the country, the determined application of objective research methods and general methodological principles, and the reliability and completeness of the analysed materials:

- The role of innovation and entrepreneurship in the development of social institutions and the improvement of the standard of living, as well as in achieving the goals of sustainable development;
- Studying the national economic, political, and social context and its impact on innovation.

Scientific methods used: literature analysis, comparative analysis, systematization, and generalization.

Literature review. In scientific literature, sustainable development and corporate social responsibility (esg) require the investigation of issues related to the formation of competitive universities striving to implement esg principles to achieve the sustainable development goals (sdgs). Many authors focus their literature review on studying existing esg models for research, risk assessment, and opportunities for achieving the sdgs in universities in kazakhstan. Esg factors, including environmental, social, and governance aspects, are becoming key elements of sustainable development. Research highlights the importance of incorporating these factors into university management strategies. For instance, in the article by y.V. Syaglova and a.M. Chetin (2023) [5], the indicators for assessing the degree of esg transformation are systematized, risks are outlined, and data on esg factor evaluations are summarized. The authors proposed an approach for developing a ranking system for esg indicators of educational institutions, utilizing electronic devices in the educational process, gender wage gaps, gender inequality in leadership positions, the number of young staff members, etc.

The publication by alexander gorbunov (2023) [6] is dedicated to the possibilities of implementing esg governance principles by integrating them into the practices of a leading university, specifically a transformational (creative-innovative) university. This model has been developed and implemented for more than 15 years by pyatigorsk state university, which demonstrates success and high efficiency. The issues of implementing esg in universities are explored in the works of roland schmuck (2021) [7], where similarities and differences between the guiding principles of esg and the principles of iso 9001:2015 are identified. The methodology used combines esg guiding principles with the principles of iso 9001. The results show that all iso 9001 principles are included in esg, but only seven out of ten esg recommendations are included in iso 9001 principles.

Growing concerns about environmental degradation, which are confirmed by various studies on corporate sustainability in strategic management and sustainable development of business programs, are discussed in the works of wang-kin chiu & ben yuk fai fong (2023) [8].

In the work "regional development of kazakhstan: theoretical premises and reality" by uskelenova a. And nikiforova n., The issues of regional development in kazakhstan are considered in the context of history and real events, driven by the need to search for and adapt accumulated best practices in regional development to smooth territorial disparities in the socio-economic sphere and to find effective management methods [9]. In the work "components of education 4.0 Within the competencies of open innovations: a systematic review" by akimov n., Kurmanov n., Uskelenova a., Raimbekov b., Utegenova z. (2023) [10], The question is analyzed: is education 4.0 A sufficient innovative and disruptive educational trend for promoting sustainable open education in universities? A review of journal articles with empirical applications of education 4.0 In the higher education sector (he) is conducted, aimed at advancing and implementing the un sustainable development goals (sdgs). The issue of forming a competency model for managers in innovation activities is addressed in the work by a.T. Uskelenova, b.S. Tolyspayev, n.A. Kurmanov, a.K. Baydakov (2020) [11], where the competencies of a manager working in the middle management tier and engaged in innovation activities are analyzed, including the evaluation of potential, operational planning, and organization of tasks related to the stages of innovation projects, etc. The article by a.T. Uskelenova, a.Kh. Akhmetjanova, zh.Y. Beisekova (2020) [12] is dedicated to scientific resources and innovation activities in kazakhstan, where the problems and factors of innovation process development are studied, and directions for implementing social policy in kazakh society are identified. The factors shaping the "knowledge economy" in the context of economic growth models are discussed in the collective work by a.T. Uskelenova, a.K. Baydakova, s.S. Seitzhanov (2020) [13], which analyzes economic growth models derived from the keynesian and neo-keynesian approaches of harrod and domar. The management of knowledge in education under the conditions of balanced development of kazakhstan's national economy is the focus of a.T. Uskelenova's (2016) [14] article, which proposes a basic strategy for developing action plans that can continuously adapt to rapidly changing real conditions.

Summarizing the literature review, it is important to note that the integration of esg principles contributes to more effective risk management, supports innovation, and responds to the demand from investors and consumers who seek to support companies whose activities and performance are aligned with high standards of sustainability and social responsibility.

Main part. An important catalyst for the development of the economy of any country is innovation. Research on the foreign experience of practical application of the concept of innovative development draws the attention of scholars from various fields of knowledge and managerial staff, as the application of innovations contributes to the growth of economic efficiency and serves as a guarantee of additional competitive advantages in the market.

Some analysts' forecasts highlight the growth of the national economy with a gradual decrease in inflation rates [15]:

- The international monetary fund revised its forecast for kazakhstan's economic growth from 3.1% To 3.5%;
- The eurasian development bank (edb) has kept its economic growth forecast for kazakhstan in 2024 at 5.0%;
- The ministry of national economy of the republic of kazakhstan has revised its economic growth forecast for kazakhstan upwards to 6%.

These forecasts indicate a revision of the national economy's development outcomes, reflecting the implementation of 400 new investment projects totaling 4.6 Trillion tenge throughout 2024. These projects will contribute to strengthening the potential in manufacturing industries, agriculture, energy, transport, and services. Higher prices for oil, gas, and food, due to the geopolitical situation or a faster recovery in china's growth rates, could again drive up overall inflation and impact core inflation. Such developments may lead to the weakening of inflation expectations and require an even stricter monetary policy.

In kazakhstan, the implementation of esg principles is of great importance as they contribute to the sustainable development of the country's economy. There is interest in attracting investments due to the allocation of funds for projects aligned with the "green" economy, minimizing environmental, social, and corporate risks, and supporting strategic development documents, such as the "strategy for achieving carbon neutrality of the

kazakhstan by 2060" [16]. The government of kazakhstan supports the initiative to implement esg principles through legislative changes and programs aimed at improving the environmental situation and stimulating social investments. In the context of sustainable development, the introduction of esg principles has been ongoing in domestic companies, especially among those operating in international markets. The risks and opportunities of current business models are reflected in esg reporting, which is part of the adaptation to new challenges in the development of the national economy. Esg indicators influence a company's attractiveness in the financial market and have become an important condition for access to capital markets. Let's now examine a list of leading companies based on their level of esg information disclosure.

Table 1 – the 50 best companies by esg disclosure level

Position in 2019	Position in 2020	Position in 2024	Company Name
1	1	1	JSC NC «KazMunayGas»
2	2	2	JSC NAC «KAZATOMPROM»
3	3	10	JSC «KazTransOi»
4	4	9	JSC «KEGOC»
16	5	6	JSC «Kazakhtelecom»
10	6	18	JSC ««Baiterek» NMH»
9	7	4	JSC «Samruk-Energy»
7	8	14	JSC «Halyk Bank»
11	9	20	Central Asian Electric Power Corporation
Note – Compiled by the authors based on materials from [17].			

Analysing the data in table 1, we note that every year, esg disclosure becomes increasingly critical for maintaining the reputation of companies and organisations, increasing their attractiveness to investors and assisting in risk management. It should be noted that jsc nc kazmunaygas and jsc nac kazatomprom have undoubtedly remained attractive to both domestic investors and foreign outsiders for decades. This is not only about the need to comply with increasing regulatory requirements, but also provides a competitive advantage, as consumers and business partners are increasingly choosing to cooperate with responsible organisations.

The rating of kazakhstan's companies striving to improve non-financial reporting currently leads in disclosing information on environmental, social, and governance (esg) aspects, which is essential primarily for the long-term and sustainable development of business. In parallel with the implementation of the esg system for sustainable development, the "five-spiral" concept is also being implemented. In kazakhstan, obstacles include the lack of a favorable environment for collaboration among the actors of this concept and the inefficiency of the "government-business," "state-science and education," and "science-business" links, as well as low innovation activity within businesses, which hinders the pace of innovation in the country's economy in the context of digitalization and the knowledge economy. In this context, kazakhstan faces the challenge of "transferring modern digital technologies, introducing elements of industry 4.0" [18]. Despite the presence of theoretical and empirical studies on economic growth and innovation development models, the integration of the state, universities, business, and society in the digital environment remains insufficiently studied. The relevance of this issue is reflected in the "digital kazakhstan" state program of 2017, which aimed at creating conditions for the transition of kazakhstan's national economy onto a fundamentally new development trajectory, ensuring the creation of a digital economy in the long term through collaboration between companies and the public, as well as alignment with the "construction of reality" in the media [19].

Current research indicates that countries with high levels of innovation potential have effective mechanisms for interaction between the government, universities, businesses, and society, and demonstrate high economic growth rates due to additional competitive advantages. The novelty of studying the communication interaction of the actors lies in the fact that the proposed recommendations may contribute to ensuring a balance in the innovative development of the national economy in the context of its digitalization, based on the proposed "five-spiral" model. An analysis and assessment of kazakhstan's national innovation system is required to identify its strengths and weaknesses, determine the problems and prospects of the country's innovation economy, as well as an analysis of the barriers hindering the implementation of the "five-spiral" concept in kazakhstan [20].

The development of a model for the interaction of key actors in the "five-spiral" framework is proposed, which will ensure their close integration and serve as a starting point for revising kazakhstan's innovation strategy at the national and regional levels, taking into account the specifics of development, economic and scientific potential, and the level of digitalization. The model is expected to foster economic growth through the synchronized and effective application of scientific and educational resources, mutual cooperation between scientific entities and business structures, and civic self-awareness, supported by government protection. The implementation of the key actors' integration model involves developing a corresponding mechanism for its practical application. The development of the "five-spiral" concept will stimulate innovation processes in kazakhstan, driven by the establishment of flexible, effective, and result-oriented communication between the actors involved in the creation, adoption, and dissemination of knowledge and innovations. The proposed scientific research will be based on progressive developments in both foreign and domestic economic thought regarding the "five-spiral" concept. The authors of the "fourth and fifth spiral" concepts are e. Karayannis and d. Campbell [21]. These concepts are a result of the transformation of the well-known "triple helix" model to adapt to new conditions in the global economy, taking into account issues of globalization and digitalization. In kazakhstan, the interaction between the government, universities, and society has been studied by scholars such as sabden o. [22], Dnishev f.M. [23], Nikiforova n.V. [24], And zhanbyrbayeva s.M. [25]. Among russian scholars, attention should be given to e.L. Kichatinova, i.V. Oleinikov [26], slonimskaya m.A. [27], And sablin k.S. [28]. However, the questions regarding the role and place of the "five-spiral" concept in the innovative development of kazakhstan's economy in the context of its digitalization, the mechanism for its practical implementation, and the construction of a systemic model for integrating the actors of the "five-spiral" remain unexplored. The novelty of this research lies in the development of proposals for adapting the "five-spiral" model to the conditions of kazakhstan.

The value of the results of studying the actors of the "fivefold spiral" in the innovative development of kazakhstan's national economy is justified by scientific and technological needs for:

At the national level, there are no effective mechanisms that ensure the close integration of the government, universities, business, and society in the context of digitalization, which are the key actors in the "fivefold spiral" concept. In this regard, the development of an innovation model based on the "fivefold spiral" concept, adapted to the realities of kazakhstan, will contribute to increasing the innovation activity of the national economy;

At the international level, the results of the research will provide an objective assessment of current knowledge in the application of the "fivefold spiral" concept, identify existing problems in its implementation, and determine directions for further development. Theoretical, methodological, and practical results of the research can contribute to the development of domestic management and economic sciences, as well as new economic thinking.

The practical significance of the research lies in the development of scientifically grounded proposals for applying the "fivefold spiral" concept in innovation activities, where a competitive product is created through the close integration of the government, universities, business, and society. The application of the "fivefold spiral" concept will contribute to enhancing the competitiveness of domestic companies by activating their innovative activities.

The conclusions and recommendations made by the authors based on the results of the research are supported by arguments derived from the generalization and analysis of a wide range of scientific, theoretical sources, and applied literature, both from domestic and foreign scholars. These are further validated by economic calculations, which, in turn, confirm the reliability of the practical proposals, as well as the application of methodological approaches based on the use of general scientific and other methods.

The results of the research have a wide range of applications and can be used:

For scientific purposes, in terms of accumulating new knowledge in the field of ensuring closer interaction between the state, universities, business, and society to activate innovation activity at the micro, meso, and macro levels;

For production and technological purposes as the theoretical and methodological foundation for incorporating the principles of the "fivefold spiral" concept into the innovation development strategy of the republic;

For social purposes – to increase the involvement of civil society in the integration processes; for educational purposes – to prepare and engage young scientists in research projects and enhance their research competencies. The results of the planned project can contribute to the activation of research in the field of developing an innovative economy by strengthening the interaction of the key actors of the "fivefold spiral" and determining the role and place of each of them. Practical recommendations for forming an adapted model of integration between the government, universities, business, and society for kazakhstan, as well as the proposed mechanism for its application in the digital environment, are timely and relevant in the current context.

The uniqueness of the work lies in the study of the issues of innovative development of the country through the "fivefold spiral" concept and the proposed original methodological approach, which allows for an objective assessment of the factors hindering the implementation of this concept in kazakhstan. The developed integration model of the government, universities, business, and society involves the formulation of the role and mechanism for adapting each actor, taking into account the specific development needs of kazakhstan.

The result of the research is practical recommendations for the development of a strategy and mechanism for innovative development of the republic, based on the application of the "fivefold spiral" concept, taking into account the implementation of the priority "digitalization of public authorities' activities" from reform 7. The public sector as a driver of change in the strategic plan for the development of the republic of kazakhstan until 2025 [29] and the seventh challenge – the third industrial revolution and the eighth challenge – growing social instability in the message of the president of the republic of kazakhstan – leader of the nation n.A. Nazarbayev to the people of kazakhstan. Strategy "kazakhstan-2050", astana, 14.12.2012 [30].

OBTAIN RESULTS (CONCLUSIONS)

The concept of the "five-fold spiral" systematically develops the "four-fold spiral" concept, including the state, entrepreneurship, universities, society, and the environment in which they function. The innovative development of the country and its regions will be achieved through the effective interaction of the actors of the "five-fold spiral." Each of them, in addition to their traditional functions, also implements new functions due to the integration of the participants of the "five-fold spiral." Each actor of the "five-fold spiral" has its own potential for development, but only their close integration can have a multiplicative effect on the socio-economic development of kazakhstan. It is important to note that, currently, the domestic society has the prerequisites for adapting the esg-education model in the transformation of higher education institutions (heis) as a vector for sustainable development, which includes:

- *The adoption of the national development plan of the country until 2029* [31], which focuses on improving the environmental situation, reducing greenhouse gas emissions, improving air quality, and adapting to climate change;

- *The integration of esg principles into the activities of companies*, which is linked to the growing trends of sustainable development and the recognition of the importance of corporate social responsibility. Many domestic companies are developing and implementing strategies aimed at reducing their negative environmental impact, enhancing social well-being, and improving management transparency;

- *The presence of support for this initiative from the government*, which emphasizes the implementation of legislative changes and programs aimed at improving the environmental situation and stimulating social investments;

- The impact on the disclosure of esg indicators by companies in the financial sector, which was previously a voluntary commitment, will become mandatory starting from 2025. Currently, the largest banks in kazakhstan have started to include esg information in their annual reports.

These prerequisites, combined with the actors of the "five-spiral" model, contribute to the development of the n-management model and imply qualitative changes in the interconnections between participants in the innovation process. In summary, we note that increasing the structure of spirals, i.e., The systemic nature of spirals, their development dynamics, control actions, and feedback mechanisms, may disappear, which is reflected in the teleonomy of the system [32]. This represents the prerequisites for discussions on foresight spaces and finding stable systemic solutions for very complex situations. The structured model will strengthen the contribution made by economists, philosophers, and science and technology researchers in justifying the

need for the application of duality. In other words, there are never purely technical or social spheres; often, they are considered socio-technical, meaning they are the results of the interaction between the social and scientific-technical spheres, thus highlighting the ethical evaluation of technologies. Therefore, determining the importance of studying the future requires the use of the five-point spiral as a possible factor in the sustainable development of esg business transformation issues, which supports both knowledge and innovation, as well as foresight, technological foresight in development. The task of society is to systematically organize reflections on possible development scenarios for kazakhstan in order to foresee and prevent serious consequences from an ethical-social perspective.

References

1. Отчёт о глобальных рисках, 2013 г. – World economic forum [web-сайт]. – 2013. – Url: <https://www.Weforum.Org/publications/> (дата обращения: 6.05.2025).
2. Послание президента республики казахстан от 1 сентября 2021 г. «Единство народа и системные реформы – прочная основа процветания страны» [электронный ресурс] // ак орда [web-сайт]. – 2021. – Url: <https://www.Akorda.Kz/ru/poslanie-glavy-gosudarstva-kasym-zhomarta-tokaeva-narodu-kazahstana-183048> (дата обращения: 6.05.2025).
3. Инициатива «новый казахстан: путь обновления и модернизации». Послание главы государства касым-жомарта токаева народу казахстана от 16 марта 2022 года [электронный ресурс] // ак орда [web-сайт]. – 2022. – Url: <https://www.Akorda.Kz/ru/poslanie-glavy-gosudarstva-kasym-zhomarta-tokaeva-narodu-kazahstana-1623953> (дата обращения: 6.05.2025).
4. Global innovation indexes 2024 [электронный ресурс] // eri [web-сайт]. – 2024. – Url: https://eri.Kz/ru/novosti_instituta/id=6717 (дата обращения: 6.05.2025).
5. Syaglova yu. V., Chetin a. M. Application of esg factors in the education system due to the changing conditions of the digital economy // ekonomika. Nalogi. Pravo = economics, taxes & law. – 2023. – № 16 (2). – С. 68–76. – Doi: 10.26794/1999-849x-2023-16-2-68-7.
6. Implementation and enrichment of esg principles in the concept and practice of management of the transformative (creative-innovative) university / alexander p. Gorbunov // environmental footprints and eco-design of products and processes (efepp). – 2023.
7. Schmuck r. Comparison of the esg guidelines used in the european higher education sector with the principles of the iso 9001:2015 quality management standard // quality – access to success. – 2021. – Vol. 22, No. 181. – April.
8. Chiu wang-kin, fong ben yuk fai. Recent trends of research and education in esg and sustainability // sustainable development goals series (sdgs). – 2023. – Doi: 10.1007/978-981-99-7210-8_2.
9. Uskelenova a. T., Nikiforova n. Regional development of kazakhstan: theoretical premises and reality // regional science policy and practice. – 2024. – Т. 16, № 3. – С. 12616. – Doi: 10.1111/Rsp3.12616.
10. Akimov n., Kurmanov n., Uskelenova a., Raimbekov b., Utegenova z. Components of education 4.0 In open innovation competence frameworks: systematic review // journal of open innovation: technology, market and complexity. – 2023. – Т. 9, № 2. – Doi: 10.1016/J.Joitmc.2023.100037. – Url: https://www.Researchgate.Net/publication/369952364_components_of_education_40_in_open_innovation_competence_frameworks_systematic_review (дата обращения: 6.05.2025).
11. Ускеленова а. Т., Толысбаев б. С., Курманов н. А., Байдаков а. К. Формирование модели компетенций менеджера инновационной деятельности // вестник университета «туран». – 2020. – № 4 (88). – Doi: 10.46914/1562-2959-2020-1-4-89-95.
12. Ускеленова а. Т., Ахметжанова а. Х., Бейсеков ж. Ы. Научные ресурсы и инновационная деятельность в казахстане // статистика, учёт и аудит. – 2020. – Т. 1 (76). – Url: <https://aesa.Kz/upload/iblock/b4e/b4e9e9b885480af4007ca61b77b0d4e4.Pdf> (дата обращения: 6.05.2025).
13. Ускеленова а. Т., Байдаков а. К., Сейтжанов с. С. Факторы формирования «экономики знаний» в призме моделей экономического роста // вестник университета «туран». – 2020. – № 1 (85). – Url: <https://vestnik.Turan-edu.Kz/jour/article/view/1106> (дата обращения: 6.05.2025).

14. Ускеленова а. Т. Управление знаниями в образовании в условиях обеспечения сбалансированного развития национальной экономики казахстана // вестник кыргызского экономического университета им. М. Рыскулбекова. – 2016. – № 4 (38). – Url: <https://drive.Google.Com/file/d/1cwvjbnrdcbhwo8erwclxz zbc96jarvcq/view> (дата обращения: 6.05.2025).

1.5 Валентинов а. Что ждёт экономику казахстана в 2024, 2025 и 2026 годах – прогнозы аналитиков [электронный ресурс] // zakon.Kz [web-сайт]. – 2024. – Url: <https://www.Zakon.Kz/finansy/6444440-chto-zhdet-ekonomiku-kazakhstana-v-2024-2025-i-2026-godakh--prognozy-analitikov.Html> (дата обращения: 6.05.2025).

16. Об утверждении стратегии достижения углеродной нейтральности рк до 2060 года. Указ президента рк от 2 февраля 2023 г. № 121 [Электронный ресурс] // әділет [web-сайт]. – 2023. – Url: <https://adilet.Zan.Kz/rus/docs/u2300000121> (дата обращения: 6.05.2025).

17. Рейтинг лучших казахстанских компаний по раскрытию esg-информации в 2021 году [электронный ресурс] // the ecolomst [web-сайт]. – 2021. – Url: <https://www.Pwc.Com/kz/en/assets/pdf/top-50.Pdf> (дата обращения: 6.05.2025).

18. Послание президента республики казахстан от 1 сентября 2021 г. «Единство народа и системные реформы – прочная основа процветания страны» [электронный ресурс] // ак орда [web-сайт]. – 2021. – Url: <https://www.Akorda.Kz/ru/poslanie-glavy-gosudarstva-kasym-zhomarta-tokaeva-narodu-kazahstana-183048> (дата обращения: 6.05.2025).

19. Государственная программа «цифровой казахстан» утверждена постановлением правительства рк от 12 декабря 2017 г. № 827 [Электронный ресурс] // әділет [web-сайт]. – 2017. – Url: <https://adilet.Zan.Kz/rus/docs/p1700000827> (дата обращения: 6.05.2025).

20. Schmuck r. Comparison of the esg guidelines used in the european higher education sector with the principles of the iso 9001:2015 quality management standard; chiu wang-kin, fong ben yuk fai. Recent trends of research and education in esg and sustainability // sustainable development goals series. – 2023.

21. Carayannis e. G., Campbell d. F. J. «Mode 3» and «quadruple helix»: toward a 21st century fractal innovation ecosystem // international journal of technology management. – 2009. – № 3–4 (46). – С. 201–234.

22. Сабден о. Концепция будущего и парадигма управления общественным строем на основе 4-ной спирали (государство, наука, бизнес и общество) // экономика. Избранные труды. – Алматы: из кн мон рк, 2017. – Т. Ххv. – 532 С.

23. Развитие инновационной системы казахстана в условиях модернизации 3.0: Институты и механизмы. Коллективная монография / под ред. А. А. Сатыбалдина. – Алматы: из кн мон рк, 2017. – 412 С.

24. Никифорова н., Смыкова м. И др. Современное состояние и тенденции инновационного развития мегаполиса // вестник казну. Серия экономическая. – 2018. – № 4 (126). – С. 82–94.

25. Жанбырбаева с. М., Зурбаева а. Б. Проблемы внедрения и реализации системы крі в высших учебных заведениях республики казахстан // известия нан рк. Серия общественных и гуманитарных наук. – 2016. – № 6. – Url: <https://clck.Ru/bmcju> (дата обращения: 6.05.2025).

26. Кичатинова е. Л., Олейников и. В. Концепция «четверной спирали» и инновационное развитие регионов // известия иркутского государственного университета. Серия «политология. Религиоведение». – 2019. – Т. 29. – С. 53–62. – Url: <http://izvestiapolit.Isu.Ru/ru> (дата обращения: 6.05.2025).

27. Slonimskaja m. A. Practically oriented applications of the quadruple helix model to the network forms of innovation and economic interactions // ekonomicheskij rost respublik belarus': globalizatsiya, innovatsionnost', ustoychivost'. – 2016. – Т. 1. – С. 230–231.

28. Sablin k. S. Problema implementacii mehanizma chetvernoy spirali v resursnih regionah rossii // molodezh evropy i rossii. – 2018. – С. 134–139.

29. Стратегический план развития республики казахстан до 2025 года [электронный ресурс] // әділет [web-сайт]. – 2018. – Url: <https://adilet.Zan.Kz/rus/docs/u1800000636> (дата обращения: 6.05.2025).

30. Послание президента республики казахстан – лидера нации н. А. Назарбаева народу казахстана. Стратегия «казахстан-2050»: новый политический курс состоявшегося государства [электронный ресурс] // ак орда [web-сайт]. – 2012. – Url: <https://www.Akorda.Kz> (дата обращения: 6.05.2025).

31. Об утверждении национального плана развития рк до 2029 года и признании утратившими силу некоторых указов президента рк. Указ президента рк от 30 июля 2024 г. № 611 [Электронный ресурс] // әділет [web-сайт]. – 2024. – Url: <https://adilet.Zan.Kz/rus/docs/u2400000611> (дата обращения: 6.05.2025).
32. Formica c. A proposito di terza missione: una nuova versione del modello di tripla elica // terza missione. Parametro di qualità del sistema universitario. – Napoli: giapeto editore, 2021. – С. 11–38.

References

1. Otchyot o global'nykh riskakh, 2013 g. – World economic forum. – 2013. – Retrieved may 6, 2025, from url: <https://www.Weforum.Org/publications/>
2. Poslanie prezidenta respubliky kazakhstan ot 1 sentyabrya 2021 g. “Edinstvo naroda i sistemnye reformy – prochnaya osnova protsvetaniya strany” – ak orda. – 2021. – Retrieved may 6, 2025, from url: <https://www.Akorda.Kz/ru/poslanie-glavy-gosudarstva-kasym-zhomarta-tokaeva-narodu-kazahstana-183048> (in russian)
3. Initsiativa “novyi kazakhstan: put' obnoveniya i modernizatsii”. Poslanie glavy gosudarstva kasym-zhomarta tokaeva narodu kazakhstan ot 16 marta 2022 goda – ak orda. – 2022. – Retrieved may 6, 2025, from url: <https://www.Akorda.Kz/ru/poslanie-glavy-gosudarstva-kasym-zhomarta-tokaeva-narodu-kazahstana-1623953> (in russian)
4. Global innovation indexes 2024 – eri. – 2024. – Retrieved may 6, 2025, from url: https://eri.Kz/ru/novosti_instituta/id=6717
5. Syaglova yu. V., Chetin a. M. Application of esg factors in the education system due to the changing conditions of the digital economy // ekonomika. Nalogi. Pravo = economics, taxes & law. – 2023. – Vol. 16, No. 2. – P. 68–76. – Doi: 10.26794/1999-849x-2023-16-2-68-7
6. Gorbunov a. P. Implementation and enrichment of esg principles in the concept and practice of management of the transformative (creative-innovative) university // environmental footprints and eco-design of products and processes (efepp). – 2023
7. Schmuck r. Comparison of the esg guidelines used in the european higher education sector with the principles of the iso 9001:2015 quality management standard // quality – access to success. – 2021. – Vol. 22, No. 181. – April
8. Chiu wang-kin, fong ben yuk fai. Recent trends of research and education in esg and sustainability // sustainable development goals series (sdgs). – 2023. – Doi: 10.1007/978-981-99-7210-8_2
9. Uskelenova a. T., Nikiforova n. Regional development of kazakhstan: theoretical premises and reality // regional science policy and practice. – 2024. – Vol. 16, No. 3. – P. 12616. – Doi: 10.1111/Rsp3.12616
10. Akimov n., Kurmanov n., Uskelenova a., Raimbekov b., Utegenova z. Components of education 4.0 In open innovation competence frameworks: systematic review // journal of open innovation: technology, market and complexity. – 2023. – Vol. 9, No. 2. – Doi: 10.1016/J.Joitmc.2023.100037. – Retrieved may 6, 2025, from url: https://www.Researchgate.Net/publication/369952364_components_of_education_40_in_open_innovation_competence_frameworks_systematic_review
11. skelenova a. T., Tolysbaev b. S., Kurmanov n. A., Baydakov a. K. Formirovanie modeli kompetentsii menedzhera innovatsionnoi deyatel'nosti // vestnik universiteta “turan”. – 2020. – No. 4 (88). – Doi: 10.46914/1562-2959-2020-1-4-89-95 (In russian)
12. Uskelenova a. T., Akhmetzhanova a. Kh., Beisekov zh. Y. Nauchnye resursy i innovatsionnaya deyatel'nost' v kazakhstane // statistika, uchet i audit. – 2020. – Vol. 1 (76). – Retrieved may 6, 2025, from url: <https://aes.kz/upload/iblock/b4e/b4e9e9b885480af4007ca61b77b0d4e4.Pdf> (in russian)
13. Uskelenova a. T., Baydakov a. K., Seitzhanov s. S. Faktory formirovaniya “ekonomiki znaniy” v prizme modelei ekonomicheskogo rosta // vestnik universiteta “turan”. – 2020. – No. 1 (85). – Retrieved may 6, 2025, from url: <https://vestnik.Turan-edu.Kz/jour/article/view/1106> (in russian)
14. Uskelenova a. T. Upravlenie znaniyami v obrazovanii v usloviyakh obespecheniya sbalansirovannogo razvitiya natsional'noi ekonomiki kazakhstan // vestnik kyrgyzskogo ekonomicheskogo universiteta im. M. Ryskulbekova. – 2016. – No. 4 (38). – Retrieved may 6, 2025, from url: <https://drive.Google.Com/file/d/1cwvj6nrdbhwo8erwclxzzbc96jarvcq/view> (in russian)

15. Valentinov a. Chto zhdet ekonomiku kazakhstana v 2024, 2025 i 2026 godakh – prognozy analitikov – zakon.Kz. – 2024. – Retrieved may 6, 2025, from url: <https://www.Zakon.Kz/finansy/6444440-chto-zhdet-ekonomiku-kazakhstana-v-2024-2025-i-2026-godakh--prognozy-analitikov.Html> (in russian)
16. Ob utverzhdenii strategii dostizheniya uglerodnoi neytral'nosti rk do 2060 goda. Ukaz prezidenta rk ot 2 fevralya 2023 g. № 121 – Adilet. – 2023. – Retrieved may 6, 2025, from url: <https://adilet.Zan.Kz/rus/docs/u2300000121> (in russian)
17. Reiting luchshikh kazakhstanskikh kompanii po raskrytiyu esg-informatsii v 2021 godu – the ecolomst. – 2021. – Retrieved may 6, 2025, from url: <https://www.Pwc.Com/kz/en/assets/pdf/top-50.Pdf> (in russian)
18. Poslanie prezidenta respubliki kazakhstan ot 1 sentyabrya 2021 g. “Edinstvo naroda i sistemnye reformy – prochnaya osnova protsvetaniya strany” – ak orda. – 2021. – Retrieved may 6, 2025, from url: <https://www.Akorda.Kz/ru/poslanie-glavy-gosudarstva-kasym-zhomarta-tokaeva-narodu-kazahstana-183048> (in russian)
19. Gosudarstvennaya programma “tsifrovoy kazakhstan” utverzhdena postanovleniem pravitel'stva rk ot 12 dekabrya 2017 g. № 827 – Adilet. – 2017. – Retrieved may 6, 2025, from url: <https://adilet.Zan.Kz/rus/docs/p1700000827> (in russian)
20. Schmuck r. Comparison of the esg guidelines used in the european higher education sector with the principles of the iso 9001:2015 quality management standard; chiu wang-kin, fong ben yuk fai. Recent trends of research and education in esg and sustainability // sustainable development goals series. – 2023
21. Carayannis e. G., Campbell d. F. J. “Mode 3” and “quadruple helix”: toward a 21st century fractal innovation ecosystem // international journal of technology management. – 2009. – No. 3–4 (46). – P. 201–234
22. Sabden o. Kontsepsiya budushchego i paradigma upravleniya obshchestvennym stroem na osnove 4-noi spirali (gosudarstvo, nauka, biznes i obshchestvo) // ekonomika. Izbrannye trudy. – Almaty: ie kn mon rk, 2017. – Vol. Xxv. – 532 P. (In russian)
23. Razvitie innovatsionnoi sistemy kazakhstana v usloviyakh modernizatsii 3.0: Instituty i mekhanizmy. Kollektivnaya monografiya / ed. A. A. Satyibaldin. – Almaty: ie kn mon rk, 2017. – 412 P. (In russian)
24. Nikiforova n., Smykova m. Et al. Sovremennoe sostoyanie i tendentsii innovatsionnogo razvitiya megalopolisa // vestnik kaznu. Seriya ekonomicheskaya. – 2018. – No. 4 (126). – P. 82–94 (In russian)
25. Zhanbyrbayeva s. M., Zurbaeva a. B. Problemy vnedreniya i realizatsii sistemy kpi v vysshikh uchebnykh zavedeniyakh respubliki kazakhstan // izvestiya nan rk. Seriya obshchestvennykh i gumanitarnykh nauk. – 2016. – No. 6. – Retrieved may 6, 2025, from url: <https://clck.Ru/bmcju> (in russian)
26. Kichatinova e. L., Oleynikov i. V. Kontsepsiya “chetvernoi spirali” i innovatsionnoe razvitiye regionov // izvestiya irkutskogo gosudarstvennogo universiteta. Seriya “politologiya. Religovedeniye”. – 2019. – Vol. 29. – P. 53–62. – Retrieved may 6, 2025, from url: <http://izvestiapolit.Isu.Ru/ru> (in russian)
27. Slonimskaja m. A. Practically oriented applications of the quadruple helix model to the network forms of innovation and economic interactions // ekonomicheskii rost respubliki belarus': globalizatsiya, innovatsionnost', ustoychivost'. – 2016. – Vol. 1. – P. 230–231
28. Sablin k. S. Problema implementatsii mekhanizma chetvernoy spirali v resursnykh regionakh rossii // molodezh evropy i rossii. – 2018. – P. 134–139
29. Strategicheskii plan razvitiya respubliki kazakhstan do 2025 goda – adilet. – 2018. – Retrieved may 6, 2025, from url: <https://adilet.Zan.Kz/rus/docs/u1800000636> (in russian)
30. Poslanie prezidenta respubliki kazakhstan – lidera natsii n. A. Nazarbayeva narodu kazakhstana. Strategiya “kazakhstan-2050”: novyi politicheskii kurs sostoavshegosya gosudarstva – ak orda. – 2012. – Retrieved may 6, 2025, from url: <https://www.Akorda.Kz> (in russian)
31. Ob utverzhdenii natsional'nogo plana razvitiya rk do 2029 goda i priznanii utrativshimi silu nekotorykh ukazov prezidenta rk. Ukaz prezidenta rk ot 30 iyulya 2024 g. № 611 – Adilet. – 2024. – Retrieved may 6, 2025, from url: <https://adilet.Zan.Kz/rus/docs/u2400000611> (in russian)
32. Formica c. A proposito di terza missione: una nuova versione del modello di tripla elica // terza missione. Parametro di qualità del sistema universitario. – Napoli: giapeto editore, 2021. – P. 11–38

ВЗАИМОСВЯЗЬ МОДЕЛИ «ПЯТЕРНОЙ СПИРАЛИ» И ПРИНЦИПОВ ESG В КОНТЕКСТЕ ИННОВАЦИОННОГО РАЗВИТИЯ РЕСПУБЛИКИ КАЗАХСТАН

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Аннотация

Актуальность исследования обусловлена исследованием вопросов интеграции двух концепций развития: «пятерной спирали» и концепции устойчивого развития бизнеса esg. Концепции несомненно полезны в росте бизнес-процессов потому как имеют основу для системного анализа. Обоснованность и достоверность научных результатов, сформулированных в статье, подтверждается критическим, но объективным анализом отечественной и зарубежной литературы по исследуемой тематике; апробацией научных публикациях в печати и внедрении результатов исследования на практике.

Цель исследования заключается в обзоре и переосмыслению подходов к формированию «пятерной спирали» и esg с выработкой предпосылок развития n-модели управления.

Методология исследования. Построение материалов статьи базировалось на качественных методах при котором авторы-исследователи собирали информацию, наблюдая за поведением процессов в естественной среде, использован метод фокус-группы, при котором авторы статьи обсуждали уровень значимости моделей «пятерной спирали» и esg-трансформации с целью обобщения методов теоретического исследования и метод научного познания, позволяющий определить общие признаки и свойства двух концепций развития национальной экономики.

Оригинальность (ценность) исследования. Суть модели «пятиэлементной спирали» заключается в понимании процесса обмена знаниями со всеми его элементами в пределах одного государства, целью которого выступает устойчивое развитие всей системы; суть концепции esg заключается в устойчивом развитии коммерческой деятельности, основанное на принципах ответственного отношения к окружающей среде, высокой социальной ответственности и качестве корпоративного управления. Явление закреплено как за рубежом, так и получило старт в управлении крупных, отечественных компаний. Ценность взаимозависимости двух концепций порождено уровнем низкого управленческого качества, наличием инструментов агрессивного маркетинга без должного учёта интересов потребителя, отсутствия продуманных систем принятия решений.

Результаты исследования. По итогам оценки взаимообусловленности двух концепций представляется в виде развития n-модели управления и означают качественные изменения во взаимосвязях участников инновационного процесса.

Ключевые слова: государство, нии и университеты, потребности человека и общества, информационное взаимодействие, социальные аспекты, окружающая среда, корпоративное управление

ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ ИННОВАЦИЯЛЫҚ ДАМУЫ
КОНТЕКСТІНДЕ «БЕС ЕСЕЛЕНГЕН СПИРАЛЬ» МОДЕЛІ МЕН ESG
ҚАҒИДАТТАРЫНЫҢ ӨЗАРА БАЙЛАНЫСЫ

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Аңдатпа

Зерттеудің өзектілігі екі даму концепциясының интеграциясын зерттеуге байланысты: «бестік спираль» және esg тұрақты бизнесті дамыту тұжырымдамасы. Тұжырымдамалар, сөзсіз, бизнес-процестердің өсуіне пайдалы, өйткені бұл модельдерде жүйелік талдау үшін негіз бар. Мақалада тұжырымдалған ғылыми нәтижелердің негізділігі мен сенімділігі зерттелетін тақырып бойынша отандық және шетелдік әдебиеттерді сыни, бірақ объективті талдаумен расталады; баспасөздегі ғылыми жарияланымдарды апробациялау және зерттеу нәтижелерін тәжірибеге енгізу.

Зерттеудің мақсаты. Басқарудың n-моделін дамытудың алғышарттарын әзірлеумен «бес спираль» және esg қалыптастыру тәсілдерін қарастыру және қайта қарастыру.

Зерттеу әдіснамасы. Мақала материалдарының құрылысы сапалы әдістерге негізделді, онда зерттеу авторлары табиғи ортадағы процестердің әрекетін бақылау арқылы ақпарат жинады, онда мақала авторлары маңыздылық деңгейін талқылады; ұлттық экономиканың дамуының екі концепциясының ортақ белгілері мен қасиеттерін анықтауға мүмкіндік беретін ғылыми таным әдісі мен теориялық зерттеу әдістерін жалпылау мақсатында «бестік спираль» және esg түрлендіру үлгілері.

Зерттеудің түпнұсқалығы (құндылығы). «Бес элементтік спираль» моделінің мәні – бір мемлекет шеңберінде оның барлық элементтерімен білім алмасу процесін түсіну, оның мақсаты – бүкіл жүйенің тұрақты дамуы; esg тұжырымдамасының мәні қоршаған ортаға жауапкершілікпен қарау, жоғары әлеуметтік жауапкершілік және корпоративтік басқару сапасы қағидаттарына негізделген кәсіпкерлік қызметті тұрақты дамыту болып табылады. Екі концепцияның өзара тәуелділігінің құндылығы басқарушылық сапаның төмен деңгейімен, тұтынушылардың мүдделерін дұрыс есепке алмаған агрессивті маркетинг құралдарының болуымен және ойластырылған шешім қабылдау жүйелерінің болмауынан туындайды.

Зерттеу нәтижелері. Бағалау нәтижелері бойынша екі ұғымның өзара тәуелділігі менеджменттің n-моделі дамуы түрінде берілген және инновациялық процеске қатысушылар арасындағы қарым-қатынастардың сапалық өзгерістерін білдіреді.

Түйін сөздер: мемлекет, ғылыми-зерттеу институттары мен университеттер, адам және әлеуметтік қажеттіліктер, ақпараттық өзара әрекеттесу, әлеуметтік аспектілер, қоршаған орта, корпоративтік басқару

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