

REVIEW
of the official reviewer of the dissertation of
Sabdenaliyev Bakhtiyar Assylbayuly on the topic «Modernisation of the Quality Management System in Higher Education Institutions in Kazakhstan through Digitalisation of Processes», for the degree of Doctor of Philosophy (PhD)
on the educational program 8D04102 – «Management»

№ No.	Criteria	Compliance with criteria (one of the answer options should be marked)	Justification of the official reviewer's position (comments in italics)
1.	The topic of the dissertation (as of the date of its approval) corresponds to the directions of scientific development and/or state programs	<p>1.1 Compliance with priority directions of science development or state programs:</p> <p><u>1) The dissertation was carried out within the framework of a project or targeted program financed from the state budget (specify the name and number of the project or program)</u></p> <p>2) The dissertation was carried out within the framework of another state program (specify the name of the program);</p> <p>3) The dissertation corresponds to the priority direction of science development approved by the Higher Scientific and Technical Commission under the Government of the Republic of Kazakhstan (specify the direction)</p>	<p>The topic of the dissertation research corresponds to the priority areas of scientific development and state programs of the Republic of Kazakhstan, in particular: the Address of the President of the Republic of Kazakhstan, Kassym-Jomart Tokayev, dated September 8, 2025; the Concept for the Development of Higher Education and Science in the Republic of Kazakhstan for 2023–2029; and the Concept of Digital Transformation, Development of the Information and Communication Technology Sector and Cybersecurity for 2023–2029, which emphasizes the implementation of digital technologies across all key sectors, including education.</p> <p>In addition, during the period of doctoral studies, the candidate actively participated in research projects as an independent contributor, including:</p> <p>BR18574240 “Strategy for the Development of Regional Potential of Kazakhstan: Assessment of Socio-Cultural and Economic Potential, Development of a Roadmap, Models and Development Scenarios” (2022–2024);</p> <p>BR24992974 “Modernization of the Higher Education Quality Assurance System in Kazakhstan through Digitalization: Development of Approaches, Mechanisms, and an Information Base” (2024–2026);</p> <p>BR24993089 “Strategy for Structural and Technological Modernization of Key Sectors of the Economy of the Republic of Kazakhstan with Consideration of ESG Approaches: Criteria, Implementation Mechanisms, and Forecast Scenarios” (2024–2026).</p>

2.	Importance for science	The work does /does not make a significant contribution to science, and its importance is well - disclosed /not disclosed.	<p>The dissertation makes a significant contribution to science, and its importance is fully disclosed.</p> <p>The scientific value of the study lies in the development of a coherent and methodologically substantiated approach to the modernisation of quality management systems in higher education under conditions of digital transformation. The author reconsiders traditional approaches to quality assurance by shifting the analytical focus from formalised control procedures to data-informed governance, where managerial decisions are grounded in systematically collected and processed digital information.</p>
3.	Principle of autonomy	<p>Level of autonomy:</p> <p>1) high; 2) medium; 3) low; 4) no independence.</p>	<p>The dissertation demonstrates a high level of independence in both conceptual and empirical dimensions of the research. The author formulates the research problem in a clear and well-justified manner, identifies relevant theoretical approaches, and consistently develops a methodological framework that ensures the coherence and reliability of the results obtained.</p> <p>The empirical component of the study reflects independent research work based on the collection, systematisation, and analysis of data characterising the activities of academic staff in the context of digitalisation. The use of modern analytical tools, including Python-based data processing and statistical analysis in JASP, indicates not only technical proficiency but also the ability to independently select and apply appropriate research methods in accordance with the objectives of the study.</p> <p>The analytical procedures employed in the dissertation, such as standardisation of indicators, correlation analysis, factor modelling, and clustering techniques, are integrated into a unified research logic and are not limited to formal application. Their use is methodologically justified and contributes to the identification of meaningful patterns in the data, which strengthens the validity of the conclusions.</p> <p>Particular attention should be given to the development of the conceptual model of the digital platform (iPortal), which reflects the author's ability to synthesise theoretical knowledge and practical considerations into an original solution. The proposed architecture of the platform, including its functional structure and</p>

			<p>integration mechanisms, is not derivative in nature and demonstrates elements of independent scientific thinking.</p> <p>The dissertation also reflects the author's capacity for critical analysis, interpretation of results, and formulation of well-grounded conclusions. The absence of mechanical borrowing of existing models and the presence of original elements in both methodological and applied components of the research indicate a high level of scientific independence.</p>
4.	Principle of internal unity	4.1 Justification of the relevance of the thesis:	<p>The relevance of the dissertation is convincingly substantiated and is grounded in both the current state of higher education development and the strategic priorities of the Republic of Kazakhstan in the context of digital transformation. The author demonstrates that ensuring the quality of higher education has become a critical factor influencing the competitiveness of the national education system, as well as the formation of human capital in a knowledge-based economy.</p> <p>The study clearly identifies a systemic contradiction between the strategic objectives defined at the state level and the actual practices of quality management in higher education institutions. While national programmes and policy documents emphasise the importance of digitalisation, the dissertation shows that universities continue to rely on traditional approaches and fragmented digital tools that do not ensure the integrity of management processes or the effective use of data for decision-making.</p> <p>The relevance of the research is further reinforced by the analysis of international experience, which indicates a global shift toward the implementation of integrated digital platforms, automated monitoring systems, and analytical tools in the management of educational quality. In comparison, the current state of digitalisation in Kazakhstani universities reveals a lack of systemic integration, limited use of analytical data, and insufficient development of methodological approaches to digital quality management.</p> <p>Particular attention is given to the need for developing new organisational and methodological foundations that would enable universities to transition from formalised control procedures to flexible, data-driven management models. The dissertation</p>
		<p>1) justified; 2) partially justified; 3) not substantiated.</p>	

			<p>substantiates that the absence of such approaches limits the effectiveness of educational processes and constrains institutional adaptability in a rapidly changing digital environment.</p> <p>The research problem is therefore not only актуальной but also insufficiently developed in the existing scientific literature, especially in relation to the specific conditions of Kazakhstani higher education. By addressing this gap, the dissertation responds to both theoretical and practical demands, thereby confirming the validity and timeliness of the chosen topic.</p>
		<p>4.2: The content of the dissertation reflects the dissertation topic:</p>	<p>The content of the dissertation fully corresponds to the stated topic and demonstrates a high degree of internal coherence and structural consistency. The research is organised in a manner that ensures a clear and logical progression from theoretical foundations to empirical analysis and, subsequently, to the development of applied solutions, all of which are directly aligned with the declared aim of modernising quality management systems in higher education through the digitalisation of processes.</p> <p>The first chapter establishes the theoretical and methodological basis of the study by examining the evolution of quality management concepts, the application of Total Quality Management principles in higher education, and the role of digitalisation in transforming educational processes. The inclusion of international experience and comparative analysis strengthens the conceptual framework and ensures its relevance to the research context.</p> <p>The second chapter provides a comprehensive analysis of the current state of digital modernisation in Kazakhstani universities. It examines the level of development of higher education, evaluates existing digital platforms and technologies, and identifies systemic limitations related to fragmentation and lack of integration. The empirical component, based on the analysis of academic staff activity and digital engagement, directly supports the research objectives and substantiates the need for a unified digital management system.</p> <p>The third chapter develops practical and strategic solutions, including mechanisms for the digitalisation of quality management, a structured roadmap for implementation, and the</p>
		<p>1) correspond to; 2) partially correspond; 3) do not correspond.</p>	

			<p>conceptual model of the iPortal platform. These elements logically follow from the theoretical and empirical findings and are aimed at addressing the identified gaps in the current management system. The interrelation between chapters is clearly maintained, and each section contributes to the achievement of the overall research aim. The dissertation demonstrates consistency in the use of concepts, methodological approaches, and analytical tools, which ensures its internal unity and completeness.</p>
		<p>4.3. The purpose and objectives correspond to the topic of the dissertation:</p>	<p>The purpose and objectives of the dissertation fully correspond to the stated topic and reflect a logically structured research design. The aim of the study is formulated as the development of organisational and methodological foundations for the modernisation of the quality management system in higher education institutions in Kazakhstan under conditions of digitalisation. This aim directly follows from the research problem and is fully consistent with the thematic focus of the dissertation. The set of research objectives is comprehensive and systematically covers all key aspects of the problem under consideration. The objectives include the analysis of theoretical foundations of quality management in higher education, the study of international experience and its adaptation to the national context, the substantiation of methodological approaches to digital quality management, as well as the assessment of the current state of digitalisation in Kazakhstani universities. These analytical tasks create a necessary basis for the development of applied solutions. Further objectives are oriented toward the practical implementation of the research results. They include the justification of mechanisms for digitalising quality management systems, the development of recommendations and a roadmap for their modernisation, and the design of a conceptual model of a digital platform (iPortal) aimed at improving the transparency and efficiency of management processes. This sequence of tasks demonstrates a transition from theoretical generalisation to applied modelling and strategic planning.</p> <p>The interrelation between the aim and objectives is clearly maintained throughout the dissertation. Each objective contributes to the consistent achievement of the overall research aim, while the</p>
		<p>1) correspond to; 2) partially correspond; 3) do not correspond.</p>	

			<p>structure of the work reflects their logical progression from theoretical analysis to empirical assessment and the formulation of practical recommendations.</p>
		<p>4.4 All sections and statements of the dissertation are logically interrelated:</p>	<p>The dissertation demonstrates a high degree of internal coherence, with all sections and key statements forming a logically interconnected and consistently developed research narrative. The structure of the study reflects a clear progression from theoretical foundations to empirical analysis and further to the development of applied solutions.</p>
		<p>1) fully interrelated; 2) partially interrelated; 3) do not interrelated.</p>	<p>The first chapter establishes the conceptual and methodological basis of the research by examining the evolution of quality management approaches in higher education, analysing international experience, and substantiating the role of digitalisation as a transforming factor. This theoretical groundwork defines the analytical framework and determines the logic of the subsequent investigation.</p> <p>The second chapter builds directly on this foundation by providing a detailed analysis of the current state of digital modernisation of quality management systems in higher education institutions in Kazakhstan. The author examines existing digital platforms, evaluates their functional limitations, and identifies systemic issues related to data fragmentation and the absence of integrated analytical mechanisms. The empirical findings obtained at this stage are not isolated observations but serve as a continuation and practical verification of the theoretical assumptions outlined earlier.</p> <p>The third chapter represents a logical extension of the analytical results and is devoted to the development of strategic and methodological solutions. The proposed mechanisms for digitalisation, the roadmap for modernisation, and the conceptual model of the iPortal platform are directly derived from the identified problems and analytical conclusions. Each proposed element is grounded in the preceding chapters and contributes to the achievement of the overall research aim.</p> <p>The interrelation between sections is also ensured through the consistency of research objectives, methodological tools, and conceptual approaches applied throughout the dissertation. The</p>

			<p>study maintains a unified analytical perspective, where theoretical constructs, empirical data, and practical recommendations are integrated into a coherent system.</p>
		<p>4.5 The new solutions (principles, methods) proposed by the author are substantiated and evaluated in comparison with known solutions:</p>	<p>The dissertation demonstrates a well-developed and methodologically grounded approach to the substantiation of new solutions, accompanied by a critical evaluation of existing theoretical and applied models in the field of quality management in higher education.</p>
		<p><u>1) there is critical analysis</u> 2) the analysis is partial; 3) the analysis does not represent personal opinions, but rather quotes from other authors; 4) no analysis.</p>	<p>The author conducts a comparative analysis of established approaches to quality assurance, including Total Quality Management (TQM), process-based management models, and contemporary digital maturity frameworks. These approaches are examined not only in terms of their conceptual foundations but also with regard to their applicability within the context of higher education systems undergoing digital transformation. The analysis reveals a number of limitations, including the fragmentation of digital tools, the predominance of formalised control procedures, and the insufficient integration of analytical mechanisms into decision-making processes.</p> <p>Against this background, the dissertation proposes a set of original solutions aimed at overcoming the identified constraints. In particular, the author develops a structured model of digital quality management based on the integration of three interrelated levels: data collection, analytical processing, and managerial decision-making. This approach is positioned as an alternative to existing models that tend to separate operational data from strategic management functions.</p> <p>A distinctive feature of the proposed solution is the conceptualisation of the iPortal platform as an integrated digital environment designed to ensure the continuity of data flows and the formation of feedback loops within the university management system. In contrast to traditional learning management systems and isolated digital tools, the proposed platform is oriented toward analytical support and the generation of actionable insights, which significantly enhances its managerial relevance.</p> <p>The dissertation also introduces an expanded interpretation of quality management by incorporating elements such as digital</p>

			<p>competencies, analytical culture, and institutional adaptability into the system architecture. These components are critically contrasted with conventional approaches, where such factors are often treated as secondary or external to the management process.</p> <p>The comparative analysis is not limited to descriptive evaluation; it is used as a basis for justifying the necessity and effectiveness of the proposed solutions. The author consistently demonstrates how the developed methods address the shortcomings of existing models and provide a more coherent and adaptable framework for managing educational quality in the context of digital transformation.</p> <p>Overall, the dissertation contains a substantiated and critically informed set of new solutions, which are evaluated in comparison with known approaches and demonstrate both theoretical originality and practical relevance.</p>
5.	Principle of scientific novelty	5.1 Are the scientific results and provisions new?	<p>The scientific results and provisions presented in the dissertation can be assessed as completely new, as they introduce an original and internally consistent approach to the modernisation of quality management systems in higher education under conditions of digital transformation.</p> <p>The novelty of the research is expressed in the development of a unified methodological framework that combines digital technologies, data-driven governance, and organisational mechanisms within a single system of quality management. Existing studies typically examine digital tools or quality assurance practices in isolation, whereas the dissertation constructs an integrated model that connects data collection, analytical processing, and managerial decision-making into a continuous and logically structured process.</p> <p>A distinctive feature of the study is the interpretation of digital data as a central element of the management system. The author moves beyond traditional control-oriented approaches and proposes a model based on continuous monitoring and analytical interpretation of digital activity indicators, which allows for more flexible and evidence-based management of educational processes.</p> <p>The originality of the research is also reflected in the development of the iPortal platform model. The proposed solution is built as a</p>
		<p>1) completely new; 2) partially new (25-75% are new); 3) not new (less than 25% are new).</p>	

			<p>multi-level digital environment that ensures transparency, controllability, and adaptability of quality management processes. Its architecture and functional logic are aligned with the specific conditions of higher education institutions and cannot be reduced to the adaptation of existing platform solutions.</p> <p>The dissertation expands the theoretical boundaries of quality management through the inclusion of emotional intelligence as a system-forming component. The author develops a three-level model of its integration and proposes a structured mechanism for its implementation, which introduces a human-centered dimension into the digital management framework and broadens the understanding of educational quality.</p> <p>The methodological contribution of the study is also significant. The use of statistical modelling, clustering, and analytical structuring of digital activity data is embedded within a unified research design, which allows for the identification of stable patterns in academic processes and strengthens the empirical foundation of the conclusions.</p> <p>The set of results obtained in the dissertation is characterised by conceptual originality, methodological consistency, and practical applicability, which supports their assessment as completely new within the field of higher education quality management.</p>
		<p>5.2 Are conclusions of the dissertation new?</p> <p>1) completely new; 2) partially new (25-75% are new); 3) not new (less than 25% are new).</p>	<p>The conclusions of the dissertation can be assessed as completely new, as they are based on an original combination of theoretical analysis, empirical data processing, and applied modelling within the field of digital transformation of higher education management.</p> <p>The novelty of the results is expressed in the author's approach to rethinking the role of digital data in the quality management system. The study does not treat digital tools as auxiliary elements, but considers them as a core component of managerial logic, where data becomes the basis for evaluating performance, identifying patterns, and supporting decision-making processes.</p> <p>A new element is the proposed structure of the quality management system, which is organised as an interconnected set of processes including data collection, analytical processing, and managerial response. This structure is not presented in a purely descriptive</p>

			<p>form, but is supported by empirical analysis and reflects a mechanism that can be implemented in real institutional settings. The conclusions are also characterised by originality in relation to the development of the iPortal platform model. The platform is presented as an integrated digital environment that combines monitoring, analytics, and feedback mechanisms. Its conceptualisation reflects an independent interpretation of how digital solutions can be embedded into university governance, rather than a replication of existing systems.</p> <p>Another aspect of novelty is associated with the inclusion of factors that are typically considered separately from technical solutions. The dissertation demonstrates that digital competencies, analytical culture, and organisational adaptability directly influence the effectiveness of quality management and should be regarded as integral elements of the system. The empirical basis of the study strengthens the originality of the conclusions. The use of quantitative methods and the analysis of academic staff activity allowed the author to identify stable patterns of digital behaviour and to justify the proposed management solutions on the basis of real data.</p> <p>The conclusions demonstrate independence, internal consistency, and a clear connection with the research objectives, which allows them to be assessed as completely new.</p>
		<p>5.3 Technical, technological, economic or management decisions are new and justified:</p>	<p>The dissertation presents a set of technical, technological, and managerial solutions that can be assessed as completely new in the context of higher education management in Kazakhstan. The novelty is not limited to the introduction of individual digital tools, but is expressed in the development of an integrated approach to the organisation of quality management based on a unified digital architecture.</p> <p>A central element of this contribution is the design of the iPortal platform, which is conceptualised not as a standalone information system, but as a multi-level management environment that combines data collection, analytical processing, and decision-making support within a single framework. The proposed structure reflects a deliberate attempt to overcome the fragmentation of existing digital solutions and to establish a continuous data cycle</p>
		<p>1) completely new; 2) partially new (25-75% are new); 3) not new (less than 25% are new).</p>	

			<p>linking academic activities with managerial outcomes. This approach introduces a new understanding of digital infrastructure as an active component of governance rather than a passive repository of information.</p> <p>The dissertation also proposes original mechanisms for structuring and analysing digital traces of academic activity. The use of classification models, factor analysis, clustering techniques, and transition matrices is not presented as a purely technical exercise, but is embedded in a broader managerial logic aimed at identifying stable patterns of behaviour and linking them to institutional performance indicators. This creates a foundation for predictive and adaptive management practices that are still insufficiently developed in the existing literature and practice of higher education in Kazakhstan. Another dimension of novelty is associated with the integration of emotional intelligence into the quality management system as a measurable and operationalised component. The author develops a multi-level framework that connects individual competencies, institutional processes, and policy-level considerations, offering a structured approach to incorporating behavioural and cognitive factors into management systems. Such an interpretation moves beyond traditional views of quality assurance and introduces an additional layer of analysis that has not been systematically addressed in comparable studies.</p> <p>The proposed solutions are not only conceptually new, but also methodologically substantiated and practically applicable. Their internal consistency, reliance on empirical data, and clear linkage to management objectives indicate a high level of justification. The dissertation demonstrates how theoretical constructs can be translated into workable models that respond to the specific conditions of the national higher education system.</p> <p>The combination of platform-based architecture, data-driven analytical models, and the inclusion of human-centered parameters forms a coherent and original contribution, allowing the presented decisions to be assessed as completely new and scientifically grounded.</p>
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6.	Validity of the main conclusions	<p>All key findings are based/not based on sound scientific evidence or are reasonably well substantiated (for qualitative research and arts and humanities majors).</p>	<p>All key findings are based on sound scientific evidence and are reasonably well substantiated.</p> <p>The conclusions presented in the dissertation are grounded in a combination of theoretical analysis and empirical investigation, which ensures their reliability and internal consistency. The author does not limit the study to a descriptive review of digitalisation processes in higher education but builds a structured analytical framework supported by quantitative data and methodological rigor.</p> <p>The empirical basis of the research includes systematically collected data on academic staff activity, reflecting different types of workload, their distribution over time, and patterns of digital engagement. The processing of this data using statistical and analytical tools, including correlation analysis, factor modelling, and clustering techniques, allows the author to identify stable relationships and underlying structures within the observed phenomena. The conclusions derived from this analysis are directly linked to the results obtained and are not speculative in nature.</p> <p>The validity of the findings is further supported by the integration of multiple analytical procedures within a single research logic. The use of standardisation methods, combined with the application of both parametric and non-parametric statistical techniques, strengthens the robustness of the results and reduces the risk of methodological bias. The interpretation of the data demonstrates a clear understanding of the limitations of the methods used and remains within the boundaries of the empirical evidence.</p> <p>The conceptual conclusions of the dissertation are also closely connected to the empirical findings. The proposed model of digital quality management and the development of the iPortal platform are not presented as abstract constructs; they are derived from the identified gaps in existing management practices and are supported by the patterns revealed in the data. This ensures coherence between the analytical and applied parts of the research.</p> <p>Attention should also be given to the consistency between the stated objectives, the methods applied, and the conclusions formulated. Each major finding follows logically from the research design and contributes to the overall argument of the dissertation.</p>
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7.	The main provisions submitted for defense	The following questions must be answered for each position separately:	<p>Provision 1.</p> <p>The dissertation substantiates an expanded understanding of the quality management system in higher education as a digitally integrated, data-driven system based on continuous monitoring and analytical processing of digital traces. The author demonstrates that quality should be interpreted not as the result of formal control, but as a dynamic characteristic formed through institutional mechanisms and behavioral patterns of academic staff. This interpretation is supported by a combination of theoretical analysis and elements of empirical data processing, ensuring a sufficient level of validity. The integration of digital analytics into quality management goes beyond traditional approaches and reflects the scientific novelty of the proposed concept, which has a wide scope of application and is presented in the author's publications.</p> <p>Provision 2.</p> <p>The dissertation develops a methodological toolkit for analyzing digital academic activity, including correlation analysis, factor analysis, clustering, and transition matrices, which makes it possible to identify stable behavioral patterns and their relationship with quality indicators. The use of specific quantitative methods and software tools ensures a high level of methodological rigor and reliability of the results. The proposed approach is not trivial, as it combines statistical analysis with managerial interpretation, thereby expanding the analytical capabilities of education management. At the same time, its application depends on the availability of digital infrastructure, which determines a moderate level of scalability. The main results are partially reflected in the author's publications.</p> <p>Provision 3.</p> <p>The author proposes a three-level architecture of quality management integrating data collection, analytical processing, and</p>
		7.1 Has the position been proven?	
		<p>1) proven;</p> <p>2) most likely proven;</p> <p>3) most likely not proven;</p> <p>4) not proven;</p> <p>5) in its current formulation, it is impossible to verify the provenness of the proposition.</p>	
		7.2 Is it trivial?	
		<p>1) yes;</p> <p>2) no;</p> <p>3) In the current formulation, it is impossible to verify the triviality of the position.</p>	
		7.3 Is it new?	
		<p>1) yes;</p> <p>2) no;</p> <p>3) In the current formulation, it is impossible to verify the triviality of the position.</p>	
		7.4 Level of application:	
		<p>1) narrow;</p> <p>2) medium;</p> <p>3) wide;</p> <p>4) in its current wording, it is impossible to verify the level of application of the provision.</p>	

		<p>7.5 Is it proven in the article?</p> <p>1) yes; 2) no; 3) In the current formulation, it is impossible to verify the triviality of the position.</p>	<p>decision-making within a framework aligned with the PDCA cycle and the concept of data-informed governance. The proposed structure is logically consistent and conceptually grounded, ensuring the connection between analytical tools and managerial mechanisms. Although the idea of multi-level management is known in the literature, its adaptation to a digital environment provides practical relevance. The model has a wide scope of application and is supported by the results presented in the author's publications.</p> <p>Provision 4. The dissertation proposes a model of digital transformation of the quality management system, including the implementation of the iPortal platform, which ensures transparency, controllability, and institutional resilience of educational processes. The theoretical provisions are reinforced by practical implementation, which significantly strengthens the evidential base and confirms the functionality of the proposed solution. The integration of technological, organizational, and analytical components forms a non-trivial model with clear elements of scientific novelty and a high potential for application, including scalability across other institutions. The main elements of the model are reflected in the author's publications.</p> <p>Provision 5. The author develops strategic directions and a roadmap for the digital modernization of quality management systems in Kazakhstani universities, including implementation stages, performance indicators, and institutional risks. These proposals logically follow from the research results and are sufficiently substantiated within the dissertation. At the same time, their forward-looking nature implies a probabilistic level of validation, which is typical for strategic developments. The proposed approach is not declarative, demonstrates elements of novelty, and is oriented toward wide application at the system level, although its reflection in the author's publications remains partial.</p>
8.	Principle of reliability.	8.1 The choice of methodology – is justified or the methodology is described in sufficient detail:	The reliability of the research is ensured through a well-structured and carefully justified methodological framework. The author clearly explains the selection of research methods and

	<p>Reliability of sources and information provided</p>	<p><u>1) yes;</u> 2) no.</p>	<p>demonstrates their relevance to the stated aim and objectives of the dissertation. The combination of conceptual analysis and quantitative techniques reflects an adequate understanding of the complexity of the research problem.</p> <p>The empirical basis of the study is built on data related to the activities of academic staff, including classified types of work, workload distribution, and patterns of digital engagement. The use of structured datasets and their systematic processing allows the author to move beyond descriptive analysis and to identify stable relationships between digital, organisational, and academic indicators.</p> <p>The methodological toolkit includes data standardisation procedures, correlation analysis, factor modelling, and clustering methods. These techniques are applied consistently and form a coherent analytical logic rather than a набор разрозненных инструментов. Their use is clearly linked to the research objectives and contributes to the validity of the findings. The application of statistical software (Python, JASP) further strengthens the credibility of the results, as it enables reproducibility and transparency of the analytical procedures.</p> <p>Attention is also given to the conceptual interpretation of the results. The author does not limit the analysis to numerical outputs but integrates them into a broader understanding of digital transformation processes in higher education. This balance between quantitative evidence and analytical interpretation increases the reliability of the conclusions.</p> <p>The sources used in the dissertation include international and national research, regulatory documents, and empirical data, which together form a sufficiently comprehensive and relevant information base. The selection of sources reflects the current state of research in the field and supports the theoretical and methodological positions of the study.</p> <p>The methodology is described in sufficient detail, and the information provided in the dissertation can be considered reliable and well-substantiated.</p>
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		<p>1) yes; 2) no.</p>	

		<p>8.3 The theoretical conclusions, models, identified relationships and patterns have been proven and confirmed by experimental research (for areas of training in pedagogical sciences, the results have been proven on the basis of a pedagogical experiment):</p>	<p>The theoretical conclusions and proposed models are supported by the results of empirical analysis carried out within the framework of the study. The author relies on a dataset reflecting the digital activity of academic staff, including workload structure, time allocation, and forms of engagement in the digital environment, which serves as the basis for identifying stable relationships and behavioural patterns .</p>
		<p>1) yes; 2) no.</p>	<p>The research design allows for the verification of theoretical assumptions through the application of quantitative methods. The use of correlation analysis, factor modelling, and clustering techniques makes it possible to reveal statistically significant dependencies between academic, digital, and managerial indicators. These results are not presented in isolation but are interpreted within a broader conceptual framework related to data-informed governance and the digital transformation of quality management systems.</p> <p>The patterns identified in the course of the analysis are consistently reflected in the development of the proposed model of digital quality management. The structure of the model, including the integration of data collection, analytical processing, and decision-making mechanisms, is grounded in the empirical findings obtained during the study. This connection between theoretical constructs and analytical results strengthens the internal validity of the research.</p> <p>The development of the iPortal platform is also based on the outcomes of the empirical analysis. Its functional architecture reflects the identified needs for system integration, analytical feedback, and continuous monitoring, which confirms that the proposed solutions are not speculative but derived from observed data patterns and institutional requirements.</p> <p>The combination of conceptual reasoning with empirical verification ensures that the theoretical provisions of the dissertation are substantiated and supported by research results.</p>
		<p>8.4 Important claims are supported/partially supported/not supported by references to relevant and reliable scientific literature.</p>	<p>The dissertation demonstrates a sufficient level of reliability in terms of the sources and information used. The author relies on a broad and well-selected body of scientific literature, including classical works on quality management, contemporary studies on</p>

			<p>higher education governance, and recent research on digital transformation and data-driven management. The inclusion of both foundational theories (TQM, process-based management, systems approach) and modern analytical frameworks ensures a balanced and conceptually consistent basis for the study.</p> <p>The key statements and arguments presented in the dissertation are supported by references to relevant academic sources, reflecting engagement with international research and established scientific approaches. The literature review covers a wide range of perspectives, including institutional, technological, and methodological dimensions of quality management in higher education. This allows the author to position the research within the existing academic discourse and to justify the chosen direction of analysis.</p> <p>Particular attention is given to the integration of global experience in the field of education quality assurance and digitalisation. The use of studies related to digital platforms, learning management systems, and analytical tools strengthens the validity of the arguments concerning the need for systemic digital transformation in universities. At the same time, the author avoids excessive reliance on descriptive sources, focusing instead on analytical and peer-reviewed publications.</p> <p>The empirical part of the dissertation is also built on reliable data, including structured information on academic staff activity and digital engagement. The methods of data processing and analysis are transparent and methodologically justified, which enhances the credibility of the findings and supports the conclusions drawn.</p> <p>The references used in the dissertation are generally relevant, up-to-date, and appropriate to the research objectives. The author demonstrates the ability to critically engage with the literature rather than simply reproduce existing viewpoints, which further supports the reliability of the study.</p>
		<p>8.5 The literature sources used are <u>sufficient</u>/not sufficient for a literature review.</p>	<p>The range of literature sources used in the dissertation can be considered sufficient for conducting a comprehensive and well-founded literature review. The author draws on a wide spectrum of academic publications that cover the key theoretical and methodological areas relevant to the research topic, including</p>

			<p>quality management in higher education, digital transformation, and data-driven approaches to governance.</p> <p>The literature review demonstrates familiarity with both classical foundations of management theory and contemporary developments in the field. The inclusion of internationally recognised scholars and analytical frameworks allows the author to construct a coherent conceptual background for the study and to situate the research within the broader academic discourse.</p> <p>Attention is given not only to general theoretical positions but also to applied research addressing the implementation of digital technologies and quality assurance mechanisms in higher education systems. This combination of theoretical and empirical sources contributes to a more nuanced understanding of the problem and supports the development of the author's own approach.</p> <p>At the same time, the selected sources reflect the interdisciplinary nature of the research, incorporating perspectives from management, education, and digital technologies. This broad coverage strengthens the analytical depth of the literature review and ensures its relevance to the stated research objectives.</p> <p>The literature base, therefore, provides a solid foundation for the dissertation and is adequate for supporting the theoretical and methodological framework of the study.</p>
9.	Principle of practical value	9.1 The dissertation has theoretical significance:	<p>The dissertation demonstrates clear theoretical significance through the development of a structured and conceptually grounded approach to quality management in higher education under conditions of digital transformation. The author moves beyond traditional interpretations of quality assurance by framing it as an integrated system of data flows, analytical processing, and decision-making mechanisms.</p> <p>Particular attention is given to the reinterpretation of quality management through the concept of data-informed governance, where digital traces of academic activity are treated as meaningful inputs for institutional management. This approach reshapes the understanding of quality from a static compliance-based model to a dynamic and continuously adaptive system.</p>
		<p>1) yes; 2) no.</p>	

			<p>The study also extends the theoretical field by incorporating elements such as digital maturity, analytical culture, and institutional adaptability into a unified framework. The proposed architecture of quality management, including the multi-level integration of emotional intelligence, reflects an attempt to connect technological and behavioural dimensions within a single conceptual model. This gives the work a distinct theoretical depth and positions it within current discussions on the transformation of academic governance.</p>
		<p>9.2 The dissertation has practical significance and there is a high probability of applying the obtained results in practice:</p>	<p>The practical significance of the dissertation is evident in the development of concrete mechanisms and tools that can be directly implemented in the management systems of higher education institutions. The proposed model of the digital platform (iPortal) is not limited to a conceptual description; it is presented as a structured solution with defined functional elements, data architecture, and integration logic.</p> <p>The recommendations formulated in the dissertation are oriented toward real institutional conditions and take into account the existing level of digitalisation in Kazakhstani universities. The suggested roadmap for modernising quality management systems outlines последовательные steps for implementation, including diagnostic, transitional, and institutionalisation phases, which increases the feasibility of practical application.</p> <p>The use of empirical data on academic staff activity strengthens the applied dimension of the research, as the proposed solutions are grounded in observed patterns rather than abstract assumptions. The results of the study can be utilised in the development of internal university management systems, digital platforms, and strategic documents related to quality assurance and digital transformation.</p>
		<p>1) yes; 2) no.</p>	
		<p>9.3 Are the practice offering new:</p>	<p>The practical proposals developed in the dissertation can be considered completely new due to their integrated and system-oriented nature. The author does not replicate existing digital solutions but offers an original model that combines data collection, analytical processing, and decision-making within a unified platform environment.</p>
		<p>1) completely new; 2) partially new (25-75% are new); 3) not new (less than 25% are new).</p>	

			<p>The novelty is also reflected in the inclusion of emotional intelligence as a structured and measurable component of the quality management system, which is rarely formalised in existing approaches. The combination of digital analytics with behavioural and institutional factors creates a new configuration of quality management that has not been widely represented in prior research or practice.</p> <p>The proposed iPortal platform, along with the associated methodological and organisational solutions, represents a distinct contribution that can be regarded as an original development rather than an adaptation of existing models.</p>
10.	Quality of writing and design	<p>Quality of academic writing:</p> <p>1) high; 2) average; 3) below average; 4) low.</p>	<p>The dissertation is written in a clear and academically consistent manner, demonstrating a well-developed command of scientific language and argumentation. The text is structured in a way that allows the reader to follow the logic of the research without unnecessary complexity or ambiguity. The author maintains a balance between theoretical reflection and empirical description, which contributes to the overall readability of the work.</p> <p>The writing reflects a deliberate and disciplined approach to presenting complex material. Concepts related to quality management, digital transformation, and data-driven governance are introduced with sufficient precision and are used consistently throughout the text. There is no noticeable shift in terminology or interpretation, which indicates careful work with the conceptual framework.</p> <p>Attention should be paid to how the author handles analytical sections. The interpretation of empirical results is presented in a restrained and reasoned manner, without overstatement. The discussion of findings is linked to the research objectives and remains within the boundaries of the proposed methodology. This gives the text a sense of internal coherence and intellectual control. The structure of the dissertation supports its content effectively. The division into chapters follows a logical progression from theoretical foundations to analytical assessment and then to applied recommendations. Tables, figures, and supplementary materials are used appropriately and serve to clarify rather than overload the text.</p>

			<p>From a technical perspective, the design of the dissertation meets academic standards. The formatting is consistent, references are properly organised, and the overall presentation reflects attention to detail. The text does not contain stylistic inconsistencies that would interfere with comprehension.</p> <p>The dissertation leaves the impression of a carefully prepared academic work in which both content and presentation have been given equal consideration.</p>
11.	Comments on the dissertation	<p>The dissertation is a well-developed and methodologically consistent study; however, several points deserve further clarification and could strengthen the overall contribution of the research.</p> <p>The conceptual model of the digital platform (iPortal) is presented in a structured and logically justified manner. At the same time, the discussion could benefit from a more detailed consideration of implementation constraints, including organisational readiness, resource limitations, and potential resistance to change within academic institutions. A deeper reflection on these factors would allow for a more comprehensive assessment of the model's practical applicability.</p> <p>The empirical analysis demonstrates a solid use of quantitative methods and provides valuable insights into patterns of academic activity. At the same time, the interpretation of the results is primarily focused on internal institutional dynamics. Expanding the discussion to include a broader comparative perspective, for example by referring to international practices or cross-institutional differences, could enhance the analytical depth of the study.</p> <p>The dissertation pays significant attention to the role of digital technologies in quality management. However, the interaction between digital solutions and existing organisational cultures could be explored in greater detail. In particular, the question of how digital tools influence behavioural patterns and decision-making practices within universities remains only partially addressed.</p> <p>The proposed recommendations and strategic directions are well aligned with the research findings. At the same time, some of the proposed measures could be further specified in terms of implementation mechanisms, including timelines, responsible actors, and evaluation indicators. This would increase the level of practical elaboration of the study.</p> <p>These comments do not diminish the overall scientific and practical value of the dissertation but rather indicate areas for further development and refinement.</p>	
12.	The scientific level of the doctoral student's articles on the research topic (in the case of defending a dissertation in the form of a series of articles, official reviewers comment on the scientific level of each article of the doctoral student on the research topic)	<p>The scientific level of the doctoral student's publications can be assessed as high, reflecting a consistent and well-structured development of the research topic. The articles present the key ideas of the dissertation and demonstrate a clear progression from theoretical considerations to applied and model-oriented results.</p> <p>The publication record includes five scientific works, among them articles published in peer-reviewed journals indexed in the Scopus database (with a percentile above 0.25), as well as publications in journals recommended by the Committee for Quality Assurance in Science and Higher Education. This indicates that the research has undergone independent academic evaluation and meets established scholarly standards.</p> <p>The subject matter of the publications is closely aligned with the content and objectives of the dissertation. The articles address central issues related to the digital transformation of quality management in higher education and reflect the main</p>	

