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MODELING THE UNIVERSITY'S INTERNAL QUALITY ASSURANCE SYSTEM: THE CASE OF KAZAKHSTAN

Abstract: Research offers a conceptual model to provide the university's internal quality assurance system at national level. The purpose of paper is to develop a new model of the university's internal quality assurance system based on the values of a culture of quality among the entire higher education community: academic staff, students, managerial staff, employers, government agencies and others.

Research methodology includes a modelling approach with analytical review of legal and regulatory acts and presentation of the structural architecture of the higher education quality assurance system. This part includes the content and evaluation unit of the internal quality assurance system and organizational and analytical block of the internal quality assurance system model, and organizational and analytical block of the internal quality assurance system model. Quality assurance includes measures to manage high-quality content, high-quality contingent, high-quality personnel, and high-quality infrastructure.

The proposed model suggests that HEIs can enhance the internal quality assurance system and maintain quality culture.

Keywords: Quality assurance system, internal quality assurance, modeling of system components, regulation of internal processes, higher education

Introduction

The problem of the higher education system has become the subject of research by scientists from different countries. Ensuring the quality of education is one of the global Sustainable Development Goals of the United Nations, which corresponds to the initiative "Ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all" and its key performance indicators.

To create a quality assurance system for education, Kazakhstani universities act in accordance with the Standards and Guidelines for ensuring the quality of higher education in the European Higher Education Area. In Kazakhstan, ESG is considered more as a practical tool.

According to the world ranking on the Global Competitiveness Index (2020), Kazakhstan ranks 55th, and on the Human Development Index (2020) – 51st.

At the same time, according to Global Knowledge Index 2021, Kazakhstan occupies a low place in terms of its knowledge infrastructure. Kazakhstan ranks 78th out of 154 countries and 72nd out of 154 in the higher education sector. In 2022, the indicators in this Index deteriorated: 78th place in general and 79th place in higher education among 132 countries.

In general, the indicators correlate with each other and reveal contradictions between the necessary and achieved level of quality of education, in particular higher education and the competitiveness of the system.

In our opinion, several factors underlie the unsatisfactory quality of higher education in Kazakhstan. Here are the main ones (Mukhatayev et al., 2023):

1) lack of autonomy – until 2018, the system of higher and postgraduate education was under strict regulation of public administration, losing flexibility in terms of global competitiveness;

2) insufficient financing, in conditions of low solvency of the population, the cost of state grants remained unchanged for quite a long time. This has led to a low level of remuneration for teachers and the obsolescence of the material and technical base of universities;

3) corruption in licensing, quality control both at the level of the system as a whole and at the institutional level of higher education, which led to the opening and existence of a large number of educational institutions.

These and other problems certainly reduce the competitiveness and effectiveness of higher education. These include the low efficiency of the education quality assurance system.

To solve these problems, it is necessary to take comprehensive measures, considering global trends and best practices, as well as strengthen interaction between the state, universities, employers and the public.

With the adoption of the Law "On Amendments and Additions to some Legislative acts of the Republic of Kazakhstan on the expansion of academic and managerial independence of higher education institutions" (2018), HEIs received a certain degree of freedom of action, thereby laying the foundation for solving the first problem – the lack of autonomy.

Since 2020, the cost of grants for bachelor's degree programs has been increased from 30 to 300%, which made it possible to gradually increase the salaries of teaching staff and upgrade the infrastructure of universities. Nevertheless, the shortage of highly qualified personnel in the field of higher education persists.

Solving these and other problems, of course, should yield results in the medium and long term. The state is taking measures to improve the quality and prestige of higher education, in 2022, through the reorganization of the Ministry of Education and Science, the Ministry of Science and Higher Education was established, due to the specifics of the management of HE system and science.

The Concept of the development of higher education and science on 2023-2029 years (2023) sets ambitious goals for the system, for example, "15 Kazakhstani universities should enter the top 700 in the QS-WUR rating by 2029." One of the key tasks is to increase the share of foreign students to 10% by 2029 (according to demographic data, this will be more than 100 thousand foreign students) versus 7% in 2023 (in absolute terms, about 40 thousand foreign students).

The higher education system faces the following questions: how to accomplish the tasks set? how to achieve the indicators? With an abundance of funding, it would be possible to open new or shake up existing several universities according to the "accelerated universities" scenario, according to the type of Nazarbayev University. Unfortunately, in conditions of global uncertainty and political instability, the country does not have such a "luxury". What should I do in such a situation?

It seems to us that there is one way out – setting up QA system in such a way that it becomes synergetic and harmonious; a clear definition of the responsibility and function of each participant in the process – students, universities, accreditation bodies, employers, and the state. Particular attention should be paid to the internal quality assurance system as the primary cell of the national quality assurance model, the regulation of processes and procedures in accordance with quality assurance standards.

These and other factors suggest conducting research on improving the national higher education system to increase the competitiveness of Kazakhstani universities in the global market, including setting up IQAS for universities.

Methods of research

The study was carried out in two stages: at the first stage, an analysis of scientific literature, regulatory documents, documents of the Bologna process, domestic and international experience in the internal quality assurance system using theoretical methods was carried out. Theoretical methods included a review of scientific literature, a review of documents regulating higher education; analysis of secondary data (websites, university documents).

The obtained results were used to form conclusions about the state of IQAS of higher education in Kazakhstan and to search for possible ways to solve problematic issues, which was the second stage of the study. Using modeling methods, a model of the university's internal quality assurance system and its structural components were constructed and fragmented regulation of the university's internal processes was carried out.

Literature review

ESG (2015) serve as the framework for the internal quality assurance system in higher education institutions (IQAS HE). In that case at national level the Order of the Minister of education and science approves the Standard rules of activity of organizations of higher and postgraduate education (2018) that constitute the obligation of HEI to improve the quality of educational activities.

The autonomy of HEIs allowed to create their internal quality assurance system that includes a set of components as quality assurance goals, conceptual approaches, methods, principles, functions, and technology of provision as a purposeful interaction of participants in the educational process, focused on achieving the desired result (Yesenbayeva G.A. and Kakenov K.S., 2014). But such model does not directly show the influence of international factors and conditions on higher education institutions such as the globalization of the economy, the democratization of society, the mass character of higher education, the development of science and technology, etc.

In accordance with HEIs' statutory goals and development potential, the university should provide that all processes are structured to ensure prompt identification of problems, their adequate research and formulation of possible solutions, paying attention to the substantive aspects of quality assurance and minimizing formal requirements for curricula, PhD programs and departments (ANVUR, 2023).

Having established the internal quality assurance system HEIs are in search of tools for self-assessment and of choosing of appropriate mechanisms and activities in the educational process (Sharova et al., 2023; Gaftandzhieva et al., 2020). The most adequate instrument for many researchers is to conduct surveys among different types of stakeholders to evaluate the level of quality assurance formation (Graham et al., 2023; Er et al., 2020). Such surveys have got an aim of continual quality improvement in student learning with accountability as an important consequence (Boyle, P., and Bowden, J. A., 1997).

Therefore IQAS, as a primary issue, is partnership that include those that promote cooperation among faculty and staff groups such as unions, departments, and work units. This collaboration directed to efficient training of students considering the changing competence requirements of the labor market (Orr et al., 2020).

In our study we analyzed the Kazakhstan model quality assurance in higher education developed by researchers of Astana IT University where an indicator of IQAS HE is the academic reputation of HEI. In their model "academic reputation" reflects the "perceived quality" of the university's educational service by the consumer (Omirbayev et al., 2021). Academic reputation plays a significant role in strengthening its social responsibility where quality assurance in HEI serves as one of the core academic values (Eaton, J.S., 2021).

The quality as value must be supported by the whole institutional community through different dimensions (learning and teaching effectiveness, efficiency and resource adequacy,

etc.) (Vettori et al., 2016). Although it should be maintaining the relationship between internal quality assurance and quality culture in the international higher education context (Hien, Ta and Huong, Nguyen, 2021).

The permanent evaluation of quality assurance system requires effective and efficient data management and strategic decision-making that assist in identifying potential shortcomings and areas for improvement (Ganseuer, Ch. and Pistor, P., 2017).

Analysis of the different IQAS illustrates approaches and options that can be considered as good principles and a source of inspiration to guide other HEIs in the design and development of their own IQA systems although IQAS that is embedded in a particular quality culture and can't be transferable or impossible to copy and paste onto another institution.

Each university has a purpose to foster continuous improvement of the service provided whereas the internal quality systems are aimed at enabling the institutions to manage and control their quality related core activities (Núria et al., 2008).

The impact of effective IQAS can be provided by commitment of all stakeholders towards continuously enhancing educational quality, including leadership that fosters a quality culture (Renée E. et al., 2023). As for students the higher education institutions must provide training for them with internal quality assurance roles (Renée S. et al., 2016).

IQAS unambiguously covers all processes in HEI that should maintain and continuously improve the quality and standards of its educational provision (Mensah & Mary, 2022) with the support of higher management or HEI leadership (Markus and Philipp, 2018).

But the research focuses on establishment of the IQAS that in the Central Asia university that also will not neglect the diversity despite global standardization (Paradeise et al., 2013). There is a corollary that discloses the model of IQAS developed in HEI that will be a framework to support a culture of continuous improvement (Kayyali and Mustafa, 2023).

The literature review revealed that HEIs develop their own system of internal quality assurance individually, but they support the main principles of quality culture among all stakeholders. The difference between the abovementioned IQAS incorporates the presented mechanisms of its support and maintenance. In our study we present the Model of a university quality assurance system that was implemented at Astana IT University and will be adopted at national level.

Results and discussion

Literature review and an analysis of the activities of universities from the top 100 leading international rankings (QS, THE, ARWU) showed that the goal of the university quality assurance system is to increase the competitiveness of its graduates, as well as the pursuit of academic excellence and corresponds to the mission of the university.

The QA system of the University of Cambridge (Cook, N.D.) is documented and describes the role and place of the following: Key institutional bodies, Education services, Key central committees, Key quality processes, External regulators, Student engagement. Special attention should be paid to Key quality processes, which are important components in quality assurance; an Overview of process responsibilities (University of Oxford, n.d.) is separately attached to the system, in which the roles of departments and services are distributed.

At MIT, quality assurance is implemented in accordance with the International Standards of Professional Internal Audit Practice (The Institute of Internal Auditors, 2017) published by the Institute of Internal Auditors (IIA). These standards require objectivity and independence in conducting audits. To ensure independence, the university has a dual reporting structure: on the one hand, the MIT Risk and Audit Committee, and on the other hand, the Executive Vice President and Treasurer.

The main document in the field of QA at the University of Oxford is the "University Quality Assurance Management System" (University of Oxford, n.d.), which summarizes materials on key bodies responsible for quality assurance and the official integration structure.

The California Institute of Technology ensures quality through the activities of the Audit Service and the Compliance Institute (ASIC Department, n.d.), which conduct financial, operational and information technology audits in accordance with approved plans and established policies and procedures.

The University of Pennsylvania has adopted the Integrated Internal Control System (IICF), an adaptation of the COSO (Committee of Sponsoring Organizations of the Treadway Commission) (University of Pennsylvania, 2020), to be used as the basis for an internal control and regulatory compliance environment. This structure defines internal control as a process carried out by the board of directors, management and other personnel of the organization.

The University of Melbourne is, in some ways, encouraged by the national regulation and quality assessment mechanism governing Australian higher education, introduced by the Commonwealth Government in 2011 (ESOS Framework). Universities in Australia operate in accordance with the Higher Education Standards System (Threshold Standards) of 2021, as well as the Educational Services for International Students Act 2000 (EOS Act) and related documents (EOS Base) (Higher Education Quality and Standards Agency (TEQSA), 2021).

University College London (UCL) publishes on its official website annually the UCL Academic Policy (Academic Manual) (UCl, 2023), which includes academic rules, policies and procedures applicable to all UCL faculty and research students who are enrolled for the 2023-2024 academic year. It includes rules for the curricula of departments and teachers, internal quality control and external examination, as well as collegial supervision of quality assurance (Ucl, 2023b).

The Office of Audit and Compliance (OAC) of Princeton University (Princeton University, 2024) acts as an active partner of the university's management and staff in improving business processes and strengthening internal control and compliance mechanisms by forecasting and managing business risks, ensuring reliable asset management of the university, and ensuring the integrity of operational and financial information.

Quality Management (QM) at the Technical University of Munich (TUM) (Evaluation - TUM, 2021) is a university-wide management tool for monitoring all aspects affecting the quality of learning and teaching. The focus is on students and the quality of their education.

The universities represented, which are among the top 30 best universities in the world, build their IQAS on constant monitoring of business processes, assessment of the quality of programs, expectations of students and stakeholders, based on the activities and decision-making by collegial bodies of the university, and the involvement of experts in the field of higher education.

An analysis of 107 official websites of Kazakhstani universities on the representation of Quality Assurance Policies and internal Quality assurance standards showed that 79 universities posted Policies and standards, 40 – only Policies, despite the principles of the Bologna Process on openness, transparency, and public participation in quality assurance.

There are several examples of the organization of a quality assurance system in Kazakhstani universities. For example, at Yessenov University, the Internal Assurance Policy and internal quality assurance standards are the basis of a logically structured and consistent internal quality assurance system of the Company. The system represents a cycle of continuous improvement and supports the development of a culture of quality at all levels of functioning of Society (Yessenov University, 2020).

The concept of academic quality of the autonomous organization of Nazarbayev University and the relevant policies have been developed based on international standards, Standards and recommendations for quality assurance in the European Higher Education Area,

support the mission and strategy of Nazarbayev University and reflect national imperatives that determines an institutional approach to quality assurance and improvement and covers the following 5 processes: program approval; annual program monitoring; student engagement; external review; periodic review (Nazarbayev University, 2014).

Maqsut Narikbayev University ensuring the achievement of the required level of quality, its gradual improvement, and the formation of a culture of quality assurance is implemented through a Policy to ensure academic quality (KAZGUU, 2019). This policy includes guidelines on academic integrity, inclusive education policies, and internal quality assurance mechanisms.

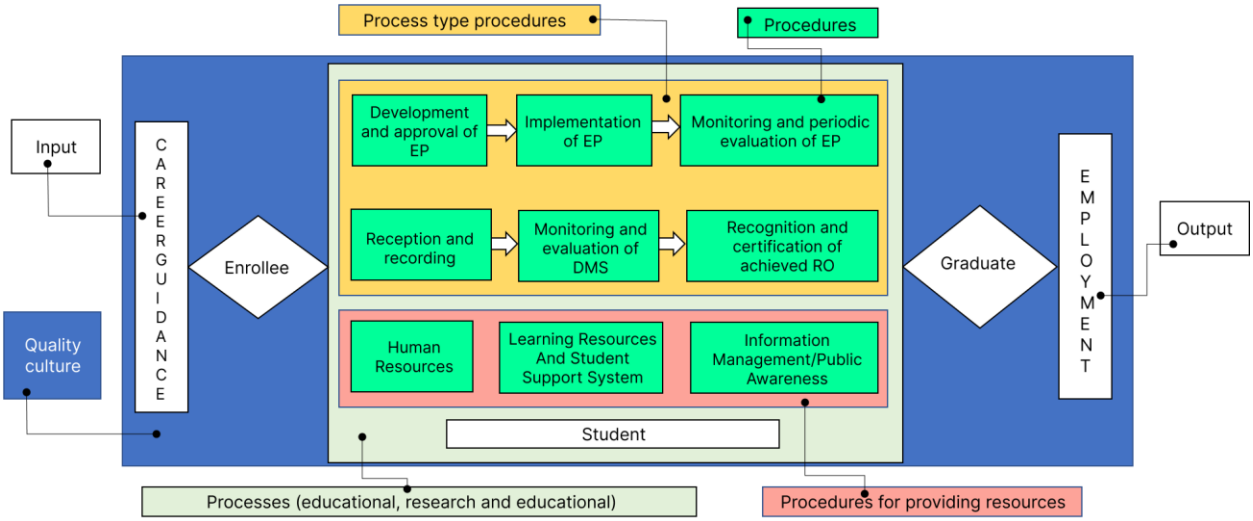
The analysis carried out and the examples presented allow us to present the results of the development of the architecture of the quality assurance system in a particular university.

Compliance with applicable laws and regulations.

To develop the architecture of a quality assurance system, it is necessary first of all to "build" a cycle of higher education from "entry" to "exit". Since Kazakhstan has been a full member of the Bologna Process since 2010, ESGs are based on the cycle (Figure 1).

Figure 1

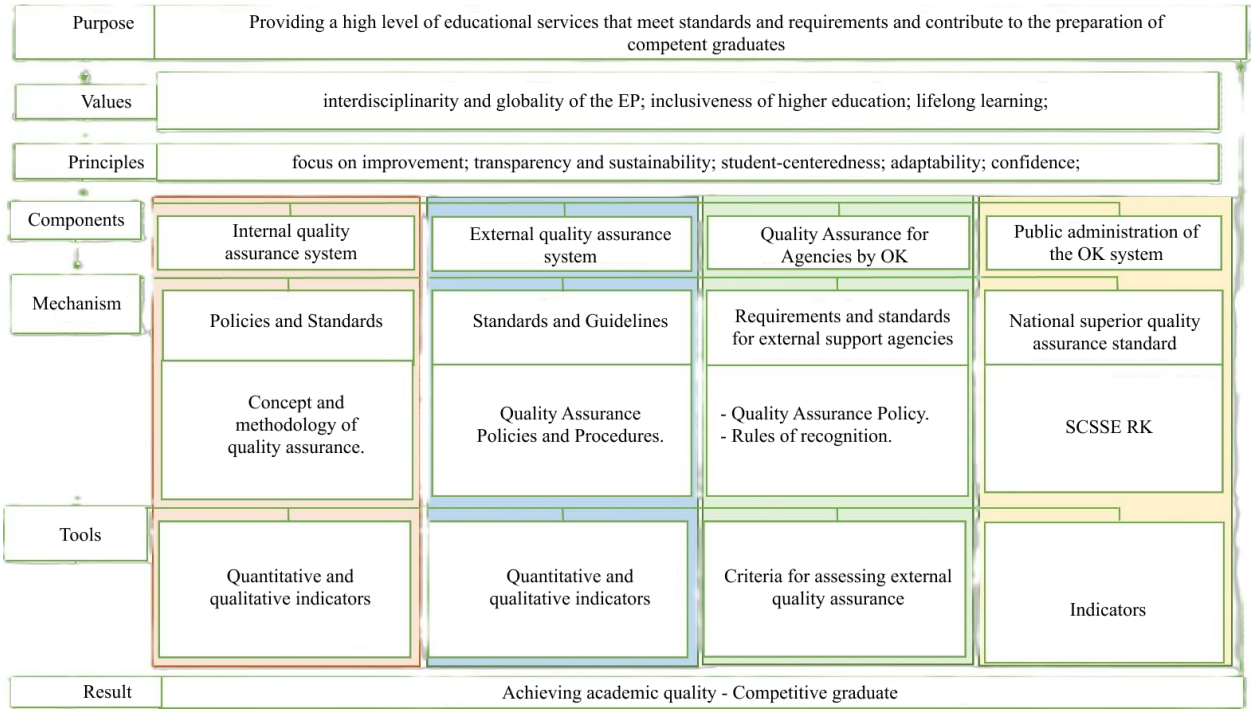
The cycle of higher education functioning (based on ESG)



The map shows that the ESG standards and regulations are reflected in the content of the relevant regulatory documents.

Further, based on the description of the improved national quality assurance model, the relationship between its components and legislative and regulatory acts, we developed a structural architecture of the QA system of higher education, consisting of targeted, methodological, meaningful, and effective blocks (Figure 2).

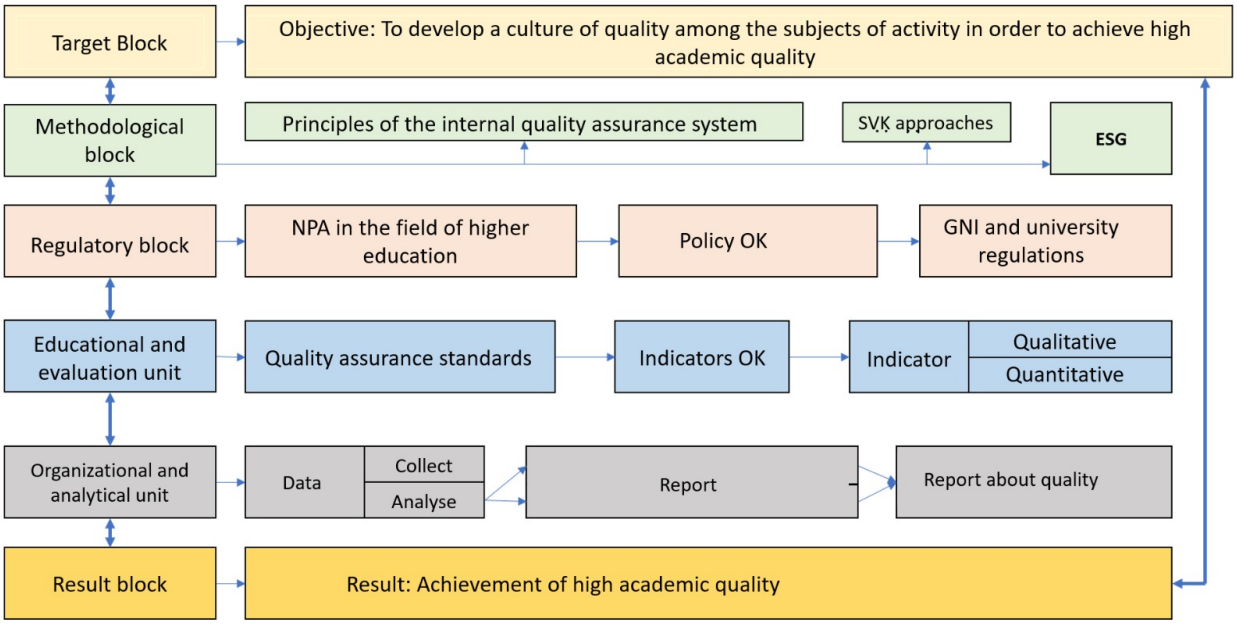
Figure 2
Structural architecture of the higher education quality assurance system



In defining a concept of "quality", we adhere to the point of view of Jessop (2012), who believes that quality assurance "involves a comprehensive assessment of results, as well as the complexity of results." That is, the concept of quality should be considered both from the point of view of the consumer, reflecting compliance with the goal, and from the point of view of compliance with the use or consumption of an educational service (product).

Employers set requirements for the high quality of the educational program and the qualitative characteristics of graduates. In this regard, HEIs should constantly work on all these factors to ensure the quality of higher education. Considering the above and bearing in mind the practical significance for universities the authors have developed a separate architecture for IQAS in the form of a structural model (Figure 3).

Figure 3
General model of the internal quality assurance system



The developed general (structural) model of the internal quality assurance system consists of the following blocks:

1) target – where the purpose of the system is defined;

2) methodological – where the principles and approaches to quality assurance are defined;

3) regulatory – where the legal framework of the system is defined;

4) substantive and evaluative, covering standards, indicators (criteria) and quality indicators;

5) organizational and analytical - procedural and procedural steps for the implementation of the system;

6) effective, determining the expected result of the quality assurance system.

All blocks of the system are logically interconnected vertically and horizontally.

The main principles of the internal quality assurance system for the university are the following (Omirbayev et al., 2023):

1) quality assurance corresponds to the diversity of higher education systems and students;

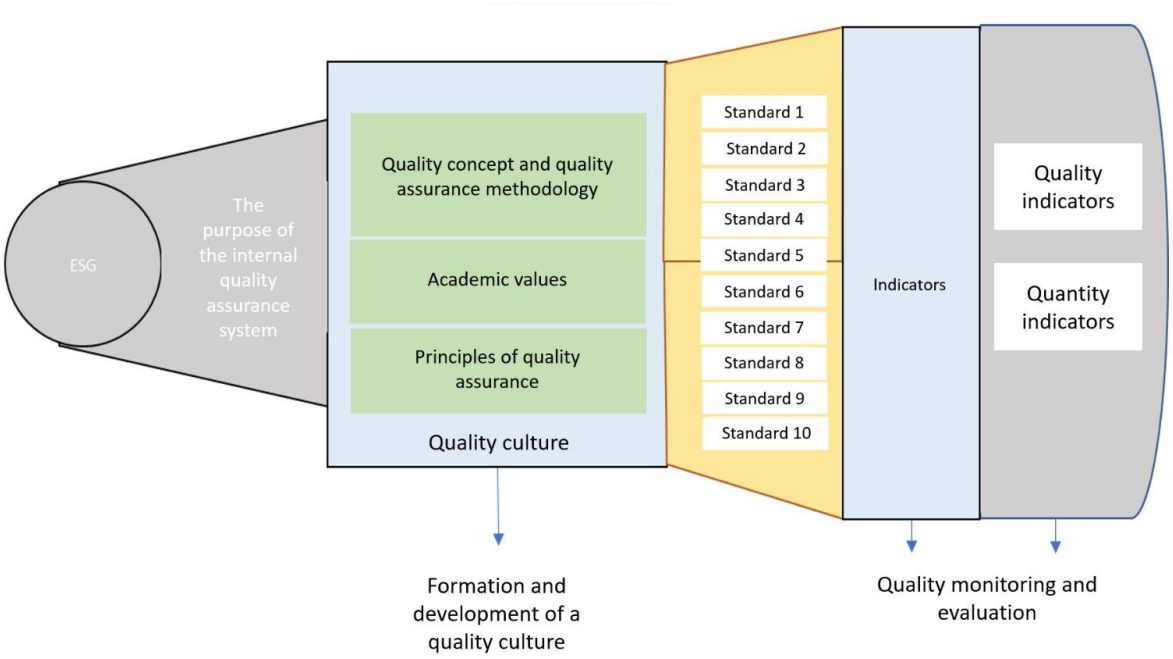
2) compliance of HEI activities with legislative and regulatory requirements, ESG recommendations;

3) quality assurance and improvement are applicable to all educational programs implemented by HEI;

4) leading role of HEI management in ensuring the unity of strategy, policy and procedures, involving all employees and students in quality assurance activities…

The content and evaluation block of the internal control system model consists of the policy and standards of assurance, criteria, and quality indicators for 10 QA standards. In general, the micromodel of this block can be structurally shown as follows (Figure 4).

Figure 4
Content and evaluation block of the internal quality assurance system



For clarity, we can give an example from practice on the content of standard 1.2. "Development and approval of educational programs" to show how internal processes can be regulated (AITU 2.0 internal quality assurance standards).

The algorithm looks like as follows:

1) on the basis of ESG and regulatory legal documents of the Republic of Kazakhstan in the field of higher and postgraduate education, the provisions of standard 1.2 "Development and approval of educational programs" and guidance, as well as its criteria, are formulated;

2) further procedures are defined and documented;

3) regulations have been developed for each procedure and described in flowcharts.

During the development of Part 1.2 "Development and approval of educational programs" of the Internal Quality Assurance System of HEI, the fundamental documents of the Bologna process are "European Standards and guidelines for quality assurance in EHEA" (Standard 1.2) and the European Credit Transfer System.

To assess the compliance of standards with the required parameters, the following criteria of Part 1.2 are defined:

1. Educational programs comply with the State Standard of Higher and Postgraduate Education, the Guidelines for the Use of ECTS, NQF RK, SQF, professional standards.
2. Educational programs consider the requirements of the labor market and the expectations of employers.
3. Educational programs are practice-oriented, types of training sessions and learning technologies are aimed at instilling skills and competencies at students.
4. Learning outcomes correlate with the descriptors of the State hgher and postgraduate education, NQF HE RK.
5. Educational programs ensure consistency of competencies, learning outcomes and academic credits in the context of academic disciplines, modules and the program as a whole.
6. Microqualification has an independent value and includes assessment based on well-defined standards, including by recognizing prior learning.

Further, the guidelines for the implementation of the provisions of Part 1.2 are defined:

1. Academic policy, Rules for the development of educational programs of higher and postgraduate education regulate the internal procedures for the development and approval of educational programs.

2. Educational programs are developed in accordance with the Rules for the development of educational programs of higher and postgraduate education.

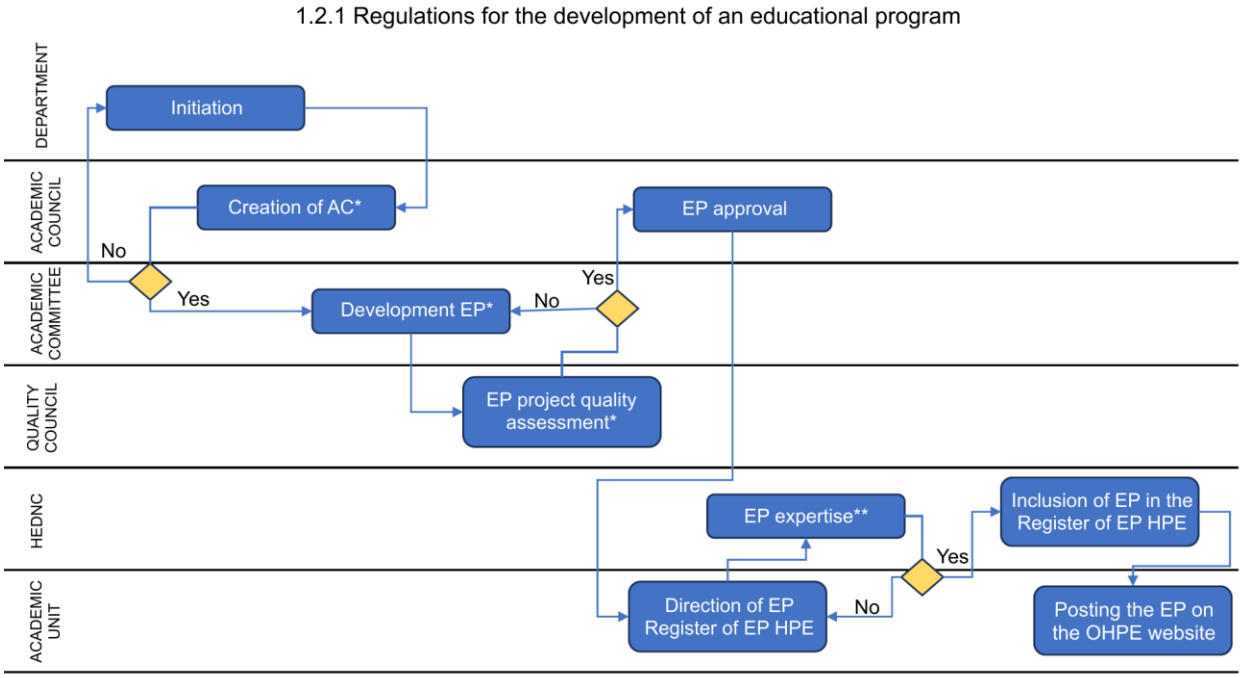
Practice has shown that the main processes of part 1.2 of the internal quality assurance system are "Development of educational programs", "Making changes and additions to educational programs" and "Development and approval of the Catalog of elective disciplines" (in principle, more procedures can be defined, but these procedures are the main ones).

For each process/procedure, the main owners, participants and the implementation procedure are determined in accordance with internal regulatory documents.

The flowchart of the 1.2.1 process "Development and approval of educational programs" is shown in Figure 5.

Figure 5

Regulations of the process "1.2.1 – Development and approval of educational programs"



* In accordance with the Development Strategy and Academic Policy of OHPE

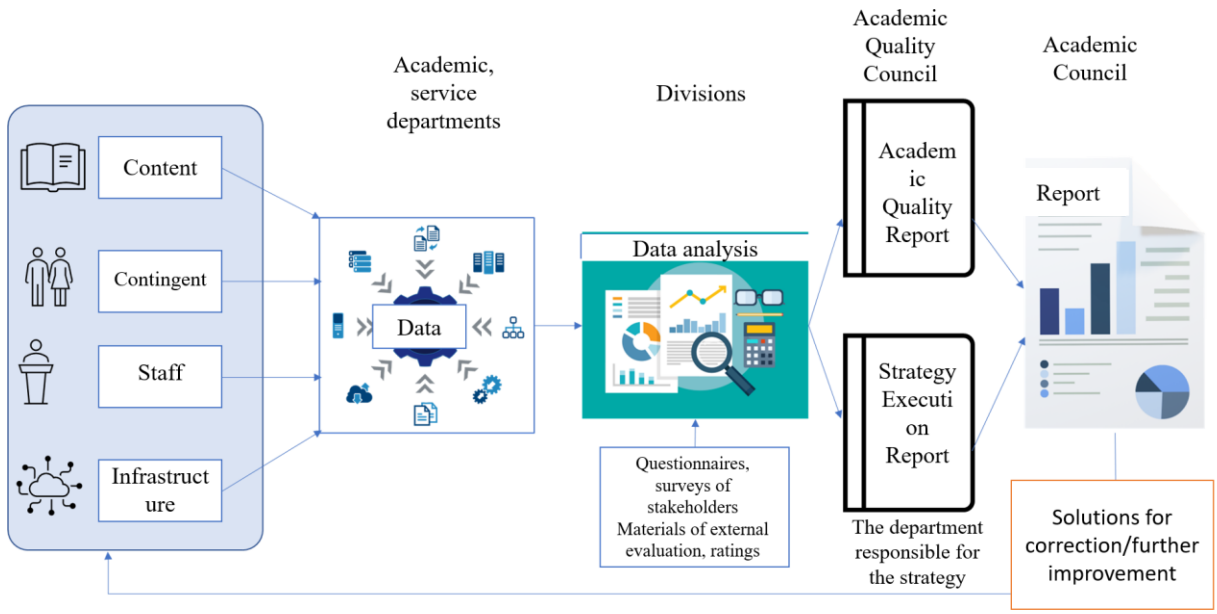
** In accordance with the Rules for the development of educational programs for higher and postgraduate education OHPE

*** In accordance with the Rules for maintaining the register of educational programs implemented by organizations of higher and (or) postgraduate education, as well as the grounds for inclusion in the register of educational programs and exclusion from it

Using the example of Part 1.2 "Development and approval of educational programs" of the internal quality assurance system, an algorithm for regulating processes is shown. All other 9 standards of IQAS should be regulated in this way.

We turn to the following blocks of the internal quality assurance system model – organizational and analytical, responsible for the procedural steps of the system implementation. In accordance with the quality assurance parameters, the following scheme of the organizational and analytical block of the internal quality assurance system model is constructed (Figure 6):

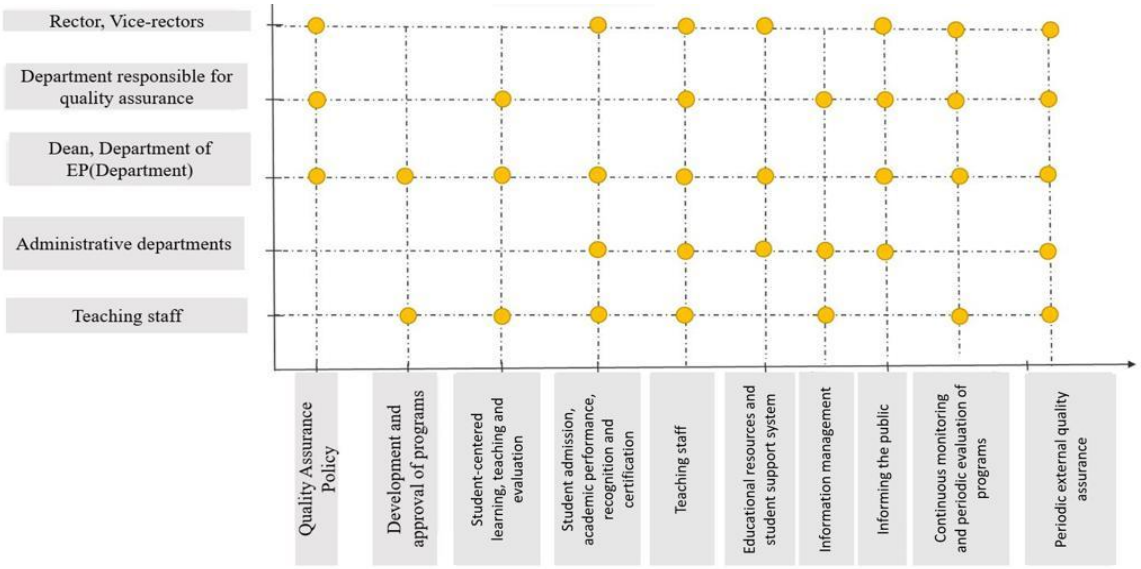
Figure 6
Organizational and analytical block of the internal quality assurance system model



As can be seen in the figure, an important place is given to data collection and analysis. This is natural, since for the successful operation of the system, an approach based on decision-making based on big data is necessary.

It is also equally important that all participants in the process participate in the development and implementation of a quality assurance system at HEI level: these are administrative, teaching staff, students. The matrix of their participation in IQAS can be shown as follows (Figure 7):

Figure 7
Matrix of involvement of HEI employees in the implementation of the standards of IQAS



In the matrix, the yellow dots at the intersections indicate the participation of one or another employee of the relevant department in the implementation of the standards of internal quality assurance of the university. Based on the density of such points, it can be concluded that all university employees are directly involved in the quality assurance system.

Thus, HEI IQAS should be aimed at maintaining high standards of quality of educational services of the university, as well as ensuring the link between education, research and innovation through the involvement of the world's leading experts in the field of information and digital technologies; the formation of a resource base for conducting scientific research of a fundamental and applied nature; the creation of laboratories of vendor companies, focused on the country's economy; ensuring a sufficient level of student civic maturity and the necessary measures to provide social support to students and university staff to increase competitiveness.

Conclusions

The model of IQAS is based on the values of a culture of quality among the entire higher education community: academic staff, students, administrative and managerial staff, employers, government agencies and others, according to which everyone is aware of their obligations and responsibilities to ensure and improve quality.

Modern problems of internal quality assurance of higher education are of great relevance for organizations of higher and postgraduate education in Kazakhstan since the modern period of modernization of the higher education system involves both structural changes and updating the content of educational programs and learning technologies.

Kazakhstan, as a full member of EHEA, forms its HE quality assurance system in accordance with European approaches, namely based on Standards and Guidelines for Quality Assurance in EHEA. This is the implementation in Kazakhstan's education not only of the commitments undertaken, but also meets the internal needs of education and national interests.

The results obtained allow us to draw the following conclusions:

- HEI IQAS should be aimed at maintaining high standards of quality of educational services of the university;
- the structural model of the university quality assurance system of higher education is aimed at the formation and maintenance of:

1) high-quality educational content;
2) a high-quality contingent;
3) high-quality personnel;
4) high-quality infrastructure.

The results obtained will help to set up the university's quality assurance system, thereby contributing to the training of highly competitive specialists for the country's economy.

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

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