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DIGITALISATION OF CRISIS MANAGEMENT AND RESOURCE BALANCING FOR EDUCATIONAL QUALITY ASSURANCE AT A DISPLACED UNIVERSITY

Abstract. The full-scale invasion of Ukraine by the Russian became a bifurcation point for universities located in temporarily occupied territories or war zones, necessitating the search for survival tools in extreme conditions. The crisis management strategy at Kherson State University involved seeking a balance of resources (material, financial, human, communicational, managerial, and innovative) to ensure the proper quality of education. The transformation of business processes accelerated digitalization, and the pursuit of balance in the face of limited resources enabled the implementation of effective anti-crisis measures and the transformation of academic policy aimed at maintaining the quality of the educational process through distance learning technologies, both synchronous and asynchronous interaction formats. This includes a selective component of up to 35% of educational programmes, implementing certificate programmes, and utilizing modern educational resources from global platforms such as Udemy, Coursera, etc. Ensuring sustainable social, professional, and educational communication between dispersed participants in the educational process has become essential to crisis management. The article aims to summarise and systematize the crisis management experience at a displaced university and to model its vital business processes in the context of digital transformation and limited resources, using Kherson State University as an example.

The article identifies the factors from the external and internal environment that affect university functioning and the quality of education under extreme operating conditions. It presents the critical contexts of enhanced digital transformation of the academic process and compensation tools for crisis education management. It demonstrates examples of resource balance searches based on an analysis of indicators and parameters of the organizational structure of the educational process. The experience of crisis management and business process forecasting can be helpful for all educational institutions operating under crisis conditions. A promising area of research is developing a programme of anti-crisis measures based on digital transformation and crisis support models for university research and investment activities.

Keywords: crisis management; business process management; educational quality assurance; digital transformation; resource balancing; higher education institutes.

1. INTRODUCTION

Statement of the problem. Crisis response models were developed and implemented at the beginning of the 21st century. They were mainly based on the circularity of financial and economic systems, suggesting prevention of crisis events, preparation for difficult periods in advance, and minimising negative consequences. However, recent research has emphasised the need to move beyond a universal approach to business process modelling [1], [2], [3]. The COVID-19 pandemic highlighted the inability of existing crisis management concepts and theories to respond to global challenges effectively. Digitalisation enabled control over situations in all spheres of human activity. Digital technologies have transitioned [4], [5] from being merely instrumental auxiliary means for office work to foundational elements of social interaction and community formation. Moreover, they are acquiring managerial roles due to the expanded use of artificial intelligence (AI).

This caused dramatic transformations and fundamental changes in the educational system [6], [7]. While the end of the pandemic has slowed down the digitalisation process globally, this issue has remained critical for Ukraine since the first day of the large-scale invasion. The war has affected all educational institutions, leading to distance learning, optimisation of the network of educational institutions, drop in funding and growth of humanitarian needs, and instability of the educational process due to security emergencies. For higher education institutions (HEIs) located in temporarily occupied territories (TOT) or war zones, operating in the normal mode became impossible. The invasion of Kherson by Russian troops in the first days of March 2022 marked another bifurcation point in the university's more than 100-year history, raising numerous issues regarding functioning under extreme conditions of war, occupation, and displacement.

Previous case studies [8], [9] indicate digital technologies' significant and profound impact under extreme uncertainty on organisational changes in HEIs. As the experience of Kherson State University (KSU) [10] shows, extreme operating conditions and the continuous uncertainty of the future have become a "window of opportunity" for the accelerated digital transformation of the university and the transformation of key business processes. The activities of KSU during the occupation of Kherson and its temporary displacement to Ivano-Frankivsk demonstrate that digitalisation has become not only a driver of changes in the design of business processes at the university but also a critical condition for ensuring the quality of education. This article initiates the following research questions:

- How can a displaced university ensure stable functioning and development under limited resources and extreme operating conditions?
- How does accelerated digitalisation affect strategy, business process management, and academic culture under extreme conditions?
- How can a displaced university, through a combination of digital technologies and a new transformation of business processes, ensure a high level of management quality, education, and preservation of the academic community?
- How can a displaced university build public trust in remote technologies and learning?

Analysis of recent research and publications.

The catalysts for accelerated transformations in any field of activity, including higher education, are extreme conditions of uncertainty, resource shortages, or a "leap" in technology development [11], [12]. A decade ago, a UNESCO expert group noted the need to rethink education in the context of rapid world changes and the spread of paradoxical and extreme phenomena [13], [14], today's critical organising factor is not independence from the physical environment but the production of information and its transmission through networks. In extreme conditions of uncertainty and crises, the potential of digital transformation forms a robust foundation for crisis response to challenges and problems. For example, the extreme difficulties of the COVID-19 pandemic have catalyzed digital transformation in higher education, forcing teachers and students to rapidly improve digital teaching, enhance the quality

of digital educational resources, and implement organisational and structural changes [15]. A study by Antonopoulou et al. [8] identified critical mechanisms for HEIs to manage digital transformation and leverage digital technologies:

- Fostering technology to stay afloat.
- Scaling functionality to create new value.
- Making the case for value to change the design.

This study of the COVID-19 pandemic demonstrates that extreme uncertainty has catalyzed rather than hindered digital transformation. The notion of a "digital university" has taken hold in the academic discourse of future universities [16].

However, for Ukraine, the main challenge amid cross-cutting social, political and economic changes was the Russian military aggression in 2014 and the large-scale military invasion by Russia in 2022. The singular "response" of society, including the educational system, to the reforms [17] and to the challenges of the war had numerous manifestations and strengths, leading to the different crisis management models [18]. Recent studies worldwide [19] and in Ukraine [10] show the critical role of academic solidarity in meeting humanitarian needs and maintaining educational sustainability during ongoing military conflict. There are also numerous other studies of recent years [20], [21], [22] that characterise the response of HEIs to the challenges of war.

Displaced universities have formed a particular category of higher education institutions in Ukraine due to the temporary occupation of specific regions and communities since 2014. The results of a study on the universities of the first "wave" of displacement in 2014 [23] revealed six dominant factors that influenced the effectiveness of Ukrainian universities in crisis management (see Table 1).

Table 1

The Impact of the Factors on Ensuring Effectiveness of Displaced Universities (in 2014) in Crisis Management

Factors	The Impact on Ensuring Effective Operations in Emergency Situations
University leadership	Strong and effective support for the university in crisis circumstances, especially from rectors who can make university-wide anti-crisis decisions and intervene in the situation.
Organizational identity	The main motivation for initiating the displacement of the institution
Communication approaches	The main factor in maintaining the academic community's morale.
Sufficient infrastructure is available	The basis for resuming work after displacement.
Financial potential and stability	Diversifying revenue sources and reducing dependence on government allocations
Alternative ways to provide the educational process	Integration of blended learning into the institution's curriculum, introduction of distance education and distance learning technologies, launch of online educational platforms and organization of professional training for teachers on the use of new digital tools in teaching

*Source: table based on [23]

Apparently, the displacement of institutions in 2014 happened in a better situation in terms of security and the absence of martial law at the national level. However, the large-scale aggression of 2022 expanded the range of challenges for the HEIs. According to Bezzubko and Ponomarova [24], for further development, displaced HEIs should primarily choose their

directions of development. The choice of direction and strategy should take into account the type of used resources (financial, international technical assistance, its combination).

Since 2022, displaced HEIs have been facing additional severe challenges in organising and maintaining the proper quality of the educational process (Fig. 1).

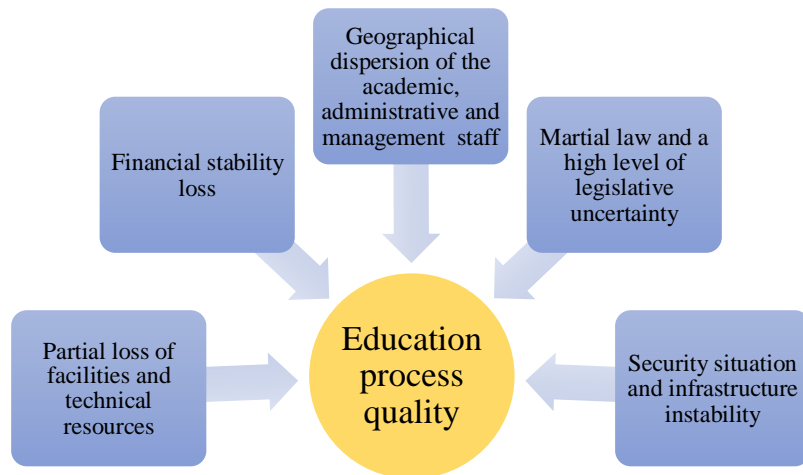


Fig. 1. Key factors of the educational process instability during the war and the temporary university displacement.

One should note that despite the variety of issues in the functioning of the displaced university, we have the following key and even pragmatic issues, particularly in ensuring the quality of educational process:

- 1) What quality of educational services does a student "receive" in the result?
- 2) How will the appropriate quality of the teacher's work be ensured with the available resources?
- 3) How can the university's limited resources be synchronized with the needs of the academic community to ensure continuous quality functioning of crucial business processes, including the educational process?
- 4) What tools should the university provide for successful training students in TOT?

The research goal. Taking into account all challenges, the article aims to summarize and systematize a displaced university's crisis management experience and model its vital business processes under digital transformation and limited resources based on the example of KSU.

Research tasks:

- To identify and describe the main wartime challenges for the displaced university in terms of transforming business processes (BPs) and educational activities;
- To characterize the components and main stages of the transformation of the educational process through the distance learning technologies under limited resources and extreme operating conditions;
- To demonstrate the benefits and resources of accelerated digitalization by modelling the BP activities of a displaced university.

2. DATA AND METHODS

This paper presents a qualitative case study of the process and results of the BP transformation of the displaced KSU under limited resources and accelerated digital transformation.

Situational analysis (*case method*) was used as a research method to identify and address any anomalies within singular BPs, to formulate a comprehensive strategy for the operation of KSU in the context of displacement. The study drew on the discussions of the university administrative staff and collegial bodies during wartime, alongside ongoing monitoring of crucial educational process indicators at KSU. Specifically, the results of the discussions were integrated into the study, providing interpretive and subjective perspectives on different approaches to developing operational models for university business processes between 2022 and 2024. It includes 36 meetings of the extended administration, 6 meetings of the scientific and methodological council, and 4 meetings of the university academic council. Situational analysis and semi-structured interviews conducted within these discussions provided holistic support for transforming the university's business processes (from innovating practices to analyzing their current implementation and evaluating effectiveness). They create the basis for our conclusions and recommendations. Data triangulation was applied through multiple data sources, such as interviews, observations, and documents, to understand the topic comprehensively.

Oleksandr Spivakovsky presented the results during a poster presentation at a meeting of the Presidium of the National Academy of Pedagogical Sciences of Ukraine (April 05, 2024). Daria Malchykova delivered a presentation on "External Occupation and Internal Freedom: Resilience and Resistance of Universities in Times of War (Kherson State University Experience)" at the PEER Network Symposium "Supporting and Learning from Universities in Times of Conflict: Towards Resilience and Resistance in Higher Education" in Brighton, UK (July 07, 2023). These presentations facilitated discussions on the acquired experience and engaged the expert community in shaping the displaced university's conceptual foundations of crisis management. Furthermore, they contributed to disseminating best practices to other HEIs.

The results of the research presented in the article are a joint contribution of the authors: an idea and approval of the final version of the article for submission (O. Spivakovsky); conceptualization of the research and preparing the draft article (D. Malchykova); general editing of the article (V. Yatsenko), identification of the goal and tasks of the research (O. Spivakovsky, D. Malchykova); substantiation of the actuality of the research (V. Yatsenko); analysis of researches and publications, characteristics of research methods (D. Malchykova); creation of a model of management decisions in organising the business process for crisis management of a displaced university (O. Spivakovsky, D. Malchykova); describing examples of analytical approaches and the development of crisis management solutions (V. Yatsenko); formulation of conclusions and prospects for further research (D. Malchykova).

3. FINDINGS

3.1. Key contexts of accelerated digital transformation of the academic process

At the beginning of the large-scale invasion, KSU comprised academic buildings, dormitories, a swimming pool, a botanical garden, and a structured organization including 9 faculties and 30 departments. The university offered over 100 educational programs spanning bachelor's, master's, academic and scientific degrees and doctoral studies. Departments and services supported the university's functioning, and its administration was based on well-modelled and efficient BPs [25], [26], [27]. The university established a quality assurance system based on Total Quality Management principles. The outbreak of wartime, occupation, and hostilities in Kherson, coupled with temporary displacement, created extreme conditions for the university operation, necessitating crisis management strategies and redesigning all business processes, primarily restructuring the educational process.

To model the key business processes of a displaced university, a comprehensive

understanding of all the contexts in which the HEI operates is required. The main external challenges include:

- the war since 2014 and the full-scale invasion of Ukraine since 2022;
- the COVID-19 pandemic;
- temporary occupation of Kherson and Kherson region and subsequent destruction of critical and civilian infrastructure in Kherson post-de-occupation;
- demographic changes in the structure of Ukrainian society (loss of human capital due to forced emigration of a large number of Ukrainians in response to the Russian invasion);
- changes in the labour market and the demand for specialists in specific fields;
- comprehensive reform of the social, economic and humanitarian spheres.

In these circumstances, Ukraine and the world embraced numerous solutions, expanding the opportunities to transform both the global and national higher education systems:

- expanding the opportunities of providing educational activities using distance learning technologies with licensed support from Microsoft and Zoom, and the utilization of academic resources from platforms like Udemy, Coursera, Labster, and Physiopedia Plus platforms on a complimentary basis;
- international and national academic mobility of students, ensuring recognition (re-enrollment) of learning outcomes;
- providing avenues for crediting achievements from non-formal education, online courses and microcredit certificate programs;
- educational projects, free internship programs and grant support for students and teachers;
- preferential admission conditions to applicants from TOT and war zones;
- transfer of applicants to state-funded study by the Resolution of the Cabinet of Ministers of Ukraine of October 28, 2022 No. 1224 “On Approval of the Procedure for Transferring Certain Categories of Applicants for Professional post-secondary education, Higher Education, Enrolled in Professional post-secondary education, Higher Education Institutions until 2021 inclusive to Places Financed by Individuals and/or Legal Entities”;
- accredit educational programs under the simplified procedure of the National Agency for Education Quality with no associated fees.

Simultaneously, external challenges have contributed to a decline in specific performance indicators at Kherson State University, in particular:

- decrease in the total student enrolment;
- an increase in the number of forced interruptions in the educational process due to shelling, airstrikes, power outages, and lack of Internet connection;
- reduction in the number of educational programs and postponement of decisions to launch new programs;
- decrease in funding from the general fund due to a reduction in the number of students supported by state financing;
- a drop of funding from the special fund due to the establishment of a minimum tuition fee for students funded by individuals and legal entities;
- decline in enrolment for preparatory courses and continuing education programs.

3.2. Compensation tools for crisis educational management.

The research conducted during the first two years of the war [5], [10] systematizes the experience of KSU in the context of a large-scale war, Kherson's temporary occupation, and

the displacement of the University. The primary mechanism for ensuring the functioning of the University in the crisis conditions of displacement was the extensive digitalization of its BPs and social communications within the university community. It included transitioning from partial to complete electronic document management, leveraging social media and Internet communications as a strategy for crisis communication and community support, accelerating the digital transformation of educational resources and implementing distance learning technologies that encompassed both synchronous and asynchronous educational formats while maintaining both a high standard educational quality.

The in-depth qualitative study of internal resources and factors ensuring stability and quality in the educational process amidst war and university displacement additionally highlights:

- the presence of digital platforms KSU Online and KSU24;
- the establishment of digitalization assistants within the faculties to expedite the digital transformation of the university business processes, particularly in education, utilizing distance learning technologies;
- implementation of personalized support for individual educational trajectories of applicants, facilitated by the resources of the KSU Online educational platform and the organizational capabilities of the KSU24 platform;
- positive changes in the student body structure due to an increase in the proportion of students funded through the state budget;
- establishment of mechanisms to determine an individual teacher workload based on a 1.0 full-time equivalent rate;
- a significant proportion of accredited educational programs of license volume for educational activities during the large-scale invasion;
- introduction of the Liberal Arts model into educational programs and curricula in 2021, including increasing the volume of elective components up to 35%;
- introduction of certificate programs as an additional resource for building an individual educational trajectory for applicants;
- increase the number of study groups so that students can enrol in elective courses while maintaining an optimal student load.

Traditional and innovative forms of academic and social monitoring have become essential tools for stabilizing the university's operation and ensuring its essential educational function:

- monitoring the location of students;
- monitoring the dynamics of the student body, forecasting attrition and analyzing changes in its structure;
- monitoring training sessions delivered in synchronous and asynchronous formats;
- monitoring metadata through a system of continuous surveys of students and teachers;
- monitoring the participation of higher education students in the examinations and certification sessions;
- monitoring the formation and execution of academic workloads for faculty across educational programs of the university;
- monitoring the creation of educational documentation in digital format;
- monitoring the submission of reporting materials on completed workloads to the university electronic repository.

To enhance the quality of practical training for applicants, both on-site and remote internship formats were implemented. Applicants were allowed to undergo internships at their residence, including opportunities abroad. Consequently, the geographical scope of internship placements and agreements has significantly expanded. Applicants have signed contracts with

enterprises and institutions in different regions of Ukraine, Germany, Spain, Poland, Estonia, and other countries. Some specialities require internships to be completed exclusively in person.

The remote format of internships is facilitated by the introduction of personalized support for students' individual educational trajectories, leveraging the capabilities of the KSU24 platform and the use of specialized IS and simulation platforms.

The key components of transforming the educational process and ensuring its quality during wartime (Fig. 2) ensure the functioning of the displaced university in normal mode, effective administration of business processes, and maintaining a high standard of education. It is important to highlight that a crucial condition for such transformations is strong leadership that balances individual decisions with collegial expertise at every stage.

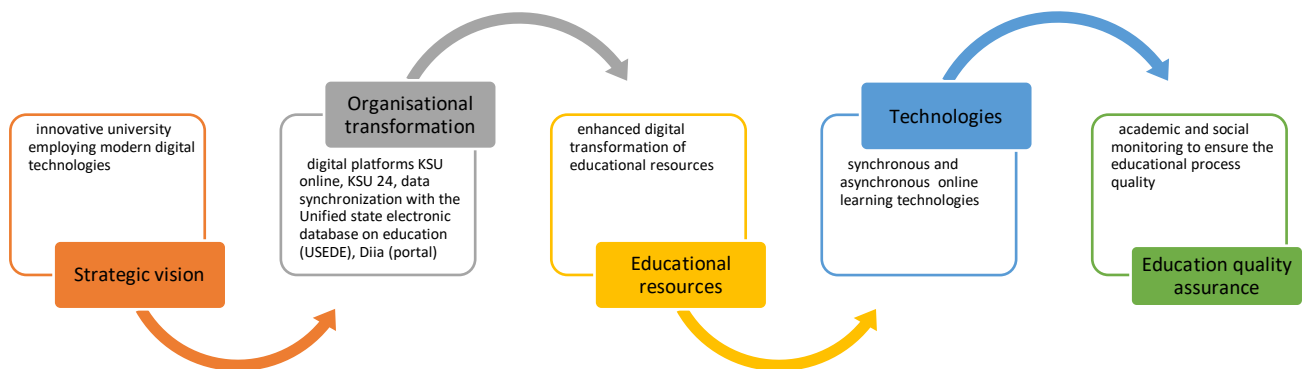


Fig. 2. The key components of the transformation of the educational process and ensuring its quality in times of war.

In particular, such management approaches enable:

- 1) to form an integral system of implementation, development and technical support of business process management systems, including the educational process, using distance learning technologies, information programs and web services, KSU Online, and KSU24 platforms;
- 2) to facilitate the functionality for transferring and storing metadata within the university environment. This capability supports the creation of e-courses and facilitates the educational process in a specialized environment, ensuring authorized access for both teachers and students through their corporate accounts;
- 3) to ensure the collection of metadata from platforms like the ZOOM video conferencing platform, KSU Online distance education and the KSU24 information system. This metadata is synchronized with the Unified State Electronic Database on Education and the national portal "Diia";
- 4) to provide advisory and technical support to teachers and students, developing automated approaches to generate monitoring data. This helps to track the involvement of academic staff and students in the educational process using distance learning technologies within the internal quality assurance system;
- 5) to synchronize the limited resources of the university with the needs of the academic community to ensure the quality of the continuous functioning of the educational process, in particular, to provide communication support and successful training for applicants in the TOT.

3.3. Modelling management decisions in the context of ensuring the quality of education and preserving the academic community.

In the challenging conditions of war and displacement, maintaining the balance of available resources becomes the leitmotif of the university's life support strategy, focusing on maintaining high education standards and preserving the academic community.

The strategy for crisis management and forced transformation of the educational process using distance technologies should prioritize maintaining a high education quality standard. Under such conditions, it is advisable to conduct an in-depth analysis of the following indicators to model management decisions in organizing the educational process:

- retention of the contingent of applicants as of 01.12.2022;
- loss of teaching staff within 5%;
- compliance with current legislation requirements regarding the organizational structure of key university departments;
- number of hours of academic load per teacher;
- number of contact hours per lecturer;
- average rate share per lecturer;
- number of academic hours workload per academic/study group;
- number of contact hours per academic/study group;
- number of study load hours per student;
- number of contact hours per student.

The results of systematic surveys among higher education students on the content and quality of educational programs, teaching of educational components, organization and content of practical training are crucial for assessing satisfaction with academic services. Utilizing the administrative and organizational capabilities of the KSU24 platform, metadata monitoring has been implemented through a system of continuous surveys of KSU students and teachers.

However, it is essential to control objective indicators and their forecasting to develop appropriate management decisions for maintaining the available resources balance [28]. Innovative accounting and analytical support are the basis for developing and implementing crisis management decisions in the university's practical activities and strategy. Below are examples of analytical approaches and the development of appropriate management decisions.

First, it is worth analyzing full-time academic groups within the entire university by structural subdivisions (faculties) and higher education levels (see Table 2). At KSU, one academic group is typically enrolled in one educational program. The fullness of full-time academic groups allows us to pinpoint which structural units need additional measures to ensure the quality of education due to their smaller size.

Table 2

Matrix of the number of applicants for the first (bachelor) and second (master) degrees of full-time higher education and the number of academic groups in the academic year 2023/2024

Faculty	the first (bachelor) degree in higher education			the second (master) degree in higher education			Total		
	Number of students	Number of groups	Number of students per group	Number of students	Number of groups	Number of students per group	Number of students	Number of groups	Number of students per 1 group
Faculty of Ukrainian and Foreign Philology and Journalism	269	26	10,35	47	8	5,88	316	34	9,29
Faulty of Psychology, History and Sociology	155	19	8,16	54	8	6,75	207	27	7,67
Faculty of Medicine	142	13	10,92	117	10	11,70	259	23	11,26
Faculty of Biology,	120	23	5,22	115	14	8,21	235	37	6,35

Geography and Ecology									
Faculty of Business and Law	283	39	7,26	96	17	5,65	379	56	6,77
Faculty of Physical Education and Sports	229	8	28,63	78	4	19,50	307	12	25,58
Faculty of Computer Science, Physics and Mathematics	226	25	9,04	74	10	7,40	300	35	8,57
Pedagogical Faculty	256	16	16,00	103	8	12,88	359	24	14,96
Faculty of Culture and Arts	117	16	7,31	58	8	7,25	175	24	7,29
Total full-time education	1797	185	9,71	742	87	8,53	2537	272	9,33

All university faculties exhibit their special and unique characteristics, different educational programs, and, consequently, a different number of academic groups. Thus, as of December 01, 2023, the university averages 9.33 applicants per 1 academic group: 9.71 applicants per 1 academic group at the first (bachelor's) level and 8.53 applicants at the second (master's) level, which is a factor of stability, despite the unfavourable factors of the external environment and the internal situation within the university. However, these figures highlight a significant disparity in applicant numbers between bachelor's and master's programs. While the master's level has an average of more than 8 applicants per group, the lower rate at the bachelor's level reflects a notable decline in applicants per program during recent wartime years, posing short-term balancing risks. Faculties with lower applicant numbers per academic group maintain high quality by integrating curricula from related fields of knowledge or majors.

The next step involves analyzing the workload per academic group and student, focusing on contact hours, encompassing lecture and practical classes (seminars, laboratories) but excluding hours dedicated to assessment activities (see Table 3).

The share of contact hours in the overall academic workload structure of the university is 76%. The most significant positive deviation from the average of +13% is observed at the Faculty of Medicine and Business and Law. However, the reasons differ, as the Faculty of Medicine it is driven by the standards of specialities in the field of knowledge 22 “Healthcare”. While at the Faculty of Business and Law, this positive deviation stems from the small size of academic groups and the low affinity of the available educational programs, which makes it impossible to combine into batches and study groups. The indicators of academic workload hours and contact hours per academic group show a direct correlation with the indicators presented in Table 3. The indicators of the number of academic workload hours and contact hours per student differ from the similar indicators per group within 5%, which proves the absence of a critical level of academic group fullness. The number of contact hours per student is consistent with the weekly workload according to the approved curricula, except for two faculties: the Faculty of Medicine and the Faculty of Culture and Arts. The deviation from the university average is explained by the peculiarities of higher education standards and the training of specialists in the educational programs implemented at these faculties.

Table 3

Ratio matrix of the study load (contact hours) per academic group and per full-time student in the academic year 2023/2024.

Faculty	Study load (hours)	Contact hours	%	Study load per group (hours)	Contact hours per group	%	Study load per student	Contact hours per student	%
Faculty of Ukrainian and Foreign Philology and Journalism	10671	8634	81%	410,42	332,08	81%	29,72	23,78	80%

Faulty of Psychology, History and Sociology	7839	6628	85%	412,58	348,84	85%	21,80	17,67	81%
Faculty of Medicine	12146,1	10816	89%	934,32	832,00	89%	42,22	36,94	87%
Faculty of Biology, Geography and Ecology	9865,25	6422	65%	428,92	279,22	65%	40,43	26,14	65%
Faculty of Business and Law	9715,5	8626	89%	249,12	221,18	89%	22,56	19,42	86%
Faculty of Physical Education and Sports	7341	4676	64%	917,63	584,50	64%	24,24	15,64	65%
Faculty of Computer Science, Physics and Mathematics	11249,7	7376	66%	449,99	295,04	66%	34,91	22,68	65%
Pedagogical Faculty	13327,5	8694	65%	832,97	543,38	65%	28,79	17,45	61%
Faculty of Culture and Arts	7876	6731	85%	492,25	420,69	85%	40,83	34,21	84%
Total full-time education	90031	68603	76%	486,65	370,83	76%	30,23	22,40	74%

Analyzing the distribution of teaching load, including contact hours per teacher and academic staff member, allows us to draw the following matrix (see Table 4).

Table 4

**Ratio matrix of the teaching load to the financial support of academic staff
(number of rates) in the academic year 2023/2024.**

Faculty	Academic load (AL) (hours) per teacher's rate	Contact hours per teacher's rate	AL (hours) per academic staff member	Contact hours per academic staff member	Number of rates per full-time academic staff member
Faculty of Ukrainian and Foreign Philology and Journalism	458,36	366,78	278,54	222,88	0,61
Faulty of Psychology, History and Sociology	467,59	378,92	516,82	418,82	1,11
Faculty of Medicine	550,78	481,91	371,54	325,09	0,98
Faculty of Biology, Geography and Ecology	557,61	360,44	338,28	218,67	0,67
Faculty of Business and Law	574,24	494,19	375,04	322,76	0,68
Faculty of Physical Education and Sports	513,69	331,56	406,89	262,63	0,89
Faculty of Computer Science, Physics and Mathematics	448,67	291,47	352,27	228,85	0,93
Pedagogical Faculty	506,55	307,10	406,96	246,73	0,86
Faculty of Culture and Arts	558,47	467,94	270,51	226,66	0,60
University	509,98	378,03	357,13	264,73	0,79

The university has about 510 hours of academic load and 378 contact hours per academic staff member. On average, a lecturer manages an academic load of 357.13 hours and 264.73 contact hours per 0.79 FTE rate per academic year, which is considered satisfactory for ensuring teaching quality across educational programs. The difference between the faculties' indicators is explained by the academic achievements of faculty members and their participation in international projects.

We emphasize that in 2021, the university introduced an innovative funding practice of distribution – scaling up formula funding at the faculty level. However, due to the wartime challenges and the suspension of formula funding in 2022 and 2023, another strategic solution was implemented using the 80% / 20% model: 80% of funding is distributed in proportion to the general and special fund revenues while 20% of strategic funding is allocated with further redistribution among faculties to support top researchers, support the activities of digitalization and international activities assistants, the most successful academic staff members in the implementation of international projects, etc. Unfortunately, the extreme wartime conditions hurt funding, resulting in the absence of 1.0 full-time equivalent positions per full-time faculty member in the current academic year. However, a significant number of faculty members are involved in international projects and grants, providing a certain level of remuneration for the work of the academic staff.

The results of the analysis highlight gaps between current and desired indicators, developing anti-crisis measures to bridge the gaps or reduce their negative impact based on the forecasting of the applicant pool. The prospect of increasing financial support while maintaining high educational standards hinges on maintaining 2024 enrollment levels in 2023. For this purpose, career guidance is being conducted, and the faculties have provided forecasted enrollment volumes to calculate projected rates, which have been communicated to the deans of the faculties and heads of departments.

The projected number of rates is calculated based on the estimated student body as of September 01, 2024, by the Resolution of the Cabinet of Ministers of Ukraine of December 24, 2019, No. 1146, “On the Distribution of State Budget Expenditures between Higher Education Institutions Based on the Indicators of Their Educational, Scientific and International Activities” [29]. The volume of applicants by faculty is used to determine the projected student body. The forecasted enrollment volume in 2024 by the level of higher education and form of study without assignment to a specific speciality considers actual student numbers by faculties as of April 1, 2024, adjusted for projected student withdrawals post-examination sessions and other factors. The estimated applicant contingent for 2024 is based on average faculty indicators, considering major indices and taking into account changes by the Resolution of the Cabinet of Ministers of Ukraine of December 24, 2019, No. 1146 “On Amendments to the Resolution of the Cabinet of Ministers of Ukraine”, which is implemented by the faculty.

The estimated contingent is used to distribute the projected rates among the faculties based on the specific training requirements of each speciality (indices of specialities at KSU range from 1 to 3), as well as indices of higher education levels and forms of education (see Table 5).

Table 5

Expected number of higher education applicants of Kherson State University for the general fund as of September 01, 2024

Faculty	Estimated enrollment of students studying at the expense of the state budget (students)	Estimated enrollment for the general fund	%
Faculty of Ukrainian and Foreign Philology and Journalism	165	204,71	124%
Faulty of Psychology, History and Sociology	122	133,32	109%
Faculty of Medicine	127	331,71	261%
Faculty of Biology, Geography and Ecology	117	183,01	156%
Faculty of Business and Law	148	157,99	107%

Faculty of Physical Education and Sports	152	187,56	123%
Faculty of Computer Science, Physics and Mathematics	172	227,21	132%
Pedagogical Faculty	325	371,92	114%
Faculty of Culture and Arts	75	171,69	229%
University	1403	1969	140%

* in accordance with [29]]

The indicators presented in Table 5 illustrate how indices influence the formation of the estimated contingent. Thus, there is a 40% increase in the estimated contingent compared to the contingent of students funded by the state budget across all faculties at the university. However, this increase varies significantly among faculties. Specifically, the Faculty of Medicine has more than doubled its estimated contingent (2.5 times), the Faculty of Culture and Arts has increased by over 2 times, and the Faculty of Biology, Geography, and Ecology has increased by 1.5 times. Two faculties show an estimated contingent within +10% of their applicant numbers. The estimated contingent of two faculties differs from the number of applicants within +10%. Understanding this aspect makes it possible to predict the redistribution of financial resources by the specifics of the faculty to ensure a high-quality educational process.

In the context of total uncertainty and turbulence of influencing factors, it is crucial to outline prospects for faculties, departments, and teachers in the next academic year. To project the number of rates and design management decisions to balance university available resources with education quality standards, funding distribution between faculties is forecasted. The share of rates per teacher as of September 1, 2024, is calculated based on projected 2024 enrollment figures and the number of students expelled by faculties. These projections account for different levels and forms of education and funding without specifying particular majors. These indicators are provided in the context of higher education levels, forms of education and funding without identifying a specific speciality. In the formula for determining the estimated contingent, the index of a specific speciality is replaced by the average index of specialities offered within each faculty.

Utility payments, projected for 2024/2025 at approximately UAH 4 million, are set at the level of the previous similar period, with faculties evenly contributing UAH 440 thousand. The auxiliary and service personnel expenses are also divided equally among faculties, constituting 40% of total funding. However, due to the migration of a certain number of service personnel and their reduced functions, university management considers a 5% reduction in these costs to model an optimistic scenario.

Thus, based on the projected indicators of the structure and number of students, the expenses for auxiliary and service personnel, with equal utility deductions, university management has developed two models of the projected fund distribution among faculties and determining the average share of the rate per teacher for the academic year 2024/2025, provided that the current number of teachers remains constant (see Table 6).

Table 6

Projecting finances distribution and formation of the rates volume per academic staff member between structural units (faculties) for the academic year 2024/2025

Faculty	Estimated amount of revenues depending on the projected number and structure of the contingent within the funding, UAH		Utility payments, UAH	The rate share per full-time employee depending on the amount of deductions for support and service personnel:	
	General fund	Special fund		40%	35%

Faculty of Ukrainian and Foreign Philology and Journalism	8032666,69	2219000	444000	0,36	0,39
Faculty of Psychology, History and Sociology	5231137,22	4291500	444000	0,84	0,91
Faculty of Medicine	13015853,46	1763000	444000	0,95	1,03
Faculty of Biology, Geography and Ecology	7181022,95	1652000	444000	0,49	0,53
Faculty of Business and Law	6199263,76	3324000	444000	0,51	0,55
Faculty of Physical Education and Sports	7359541,17	1811500	444000	0,80	0,88
Faculty of Computer Science, Physics and Mathematics	8915260,27	1690000	444000	0,57	0,62
Pedagogical Faculty	14593514,26	2276500	444000	0,64	0,69
Faculty of Culture and Arts	6736857,19	1397500	444000	0,46	0,50
University	77265116,97	20425000	3996000	0,59	0,64

These calculations prompted the management to search for anti-crisis solutions to retain staff, ensuring the quality of teaching educational components and the implementation of educational programs. To establish a balance of available funds to support scientific, methodological and managerial activities, the university management took a non-standard solution, introducing a system of incentives for leading researchers based on annual ranking, guarantors of educational programs, heads of departments, and administrative positions. As described above, up to 20% of the total financial resources are allocated to support the teachers who are the core of the university research and crisis management.

The package of proposals for establishing the balance of available resources for the 2024/2025 academic year includes:

- analyzing the effectiveness of educational programs within academic groups;
- developing and implementing new promising (interdisciplinary) educational programs;
- reviewing the content of educational programs to optimize the academic load of teachers;
- organizational restructuring of structural units within faculties/departments;
- evaluating the feasibility of involving external part-time workers in the implementation of educational programs;
- intensifying career guidance and other measures to attract applicants to exceed the projected enrollment figures for 2024;
- seeking additional funding through participation in national and international programs and projects, grant assistance, and revenues;
- developing algorithms for converting learning outcomes of certificate programs and courses on the global platforms Udemy and Coursera into program learning outcomes of existing educational programs through teacher mentoring while balancing their workload.

4. CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

Crisis management of higher education institutions during wartime aims to maintain

education quality standards and preserve the academic community. Thus, it includes a series of management decisions as follows: restructuring existing and modeling new business processes based on scaling digitalization across all university activities; transforming an academic policy to meet education quality standards and integrating distance learning technologies in the educational process, combining synchronous and asynchronous formats of interaction in the educational process; strengthening control and monitoring functions based on the system of indicators and metrics developed by the top management.

The critical components of transforming the educational process and ensuring its quality in wartime conditions include searching for strategic management solutions to balance limited resources, organizational transformation leveraging digital platforms like KSU Online and KSU24, innovations in digital educational resources and technologies, and academic and social monitoring to maintain the education quality. Digital transformation in the extreme conditions of war and occupation has become the primary crisis management tool, influencing strategy, business processes, and academic culture. Ensuring sustainable social, professional, and educational communication among dispersed educational process participants and finding alternative resource-balancing approaches are crucial.

In particular, such management approaches enable:

- cultivating a culture of innovative democratic crisis management, balancing strong leadership with collegial expertise through communication, coordination, and cooperation among stakeholders;
- continuing implementation of the educational policy aimed at expanding opportunities to build individual educational trajectories of students with up to 35% of a selective component of educational programs, implementing certificate programs and utilizing modern educational resources of the world platforms Udemy, Coursera, Labster, etc.;
- increasing academic freedom of students and balancing the academic load of teachers by converting learning outcomes from Udemy and Coursera courses into program learning outcomes through teacher mentoring;
- establishing an integral system of implementation, development and technical support of business process management systems, including managing the educational process with distance learning technologies, information programs and web services, KSU Online and KSU24 platforms;
- enabling metadata transfer and storage within the university environment for e-course creation and education process management with authorized access via teachers' and students' corporate accounts;
- ensuring collection of metadata from the ZOOM video conferencing platform, KSU Online distance education platform and the KSU24 information system, their synchronization with the Unified State Electronic Database on Education and the national portal "Diia".

Facilitating crisis communication, advisory, and technical support for teachers and students and developing automated approaches to monitor academic staff and student involvement in distance learning within the internal education quality system.

In extreme conditions and with limited resources, modelling appropriate management decisions to maintain the balance of available resources should be based on comprehensive accounting and analytical support of the educational process, advanced monitoring data, and forecasting funding distribution between faculties. Searching for a balance between available university resources and ensuring the quality of the educational process is the basis for developing and implementing crisis management solutions in the practical activities and strategy of the university. Synchronizing the university's limited resources with the academic community's needs through flexible use of the KSU Online and KSU24 platforms in synchronous/asynchronous formats supports communication support and successful training of

students in the TOT.

The proposed approaches exemplify innovative practices for implementing management decisions in challenging conditions for higher education institutions. A promising area of research is developing a program of anti-crisis measures based on digital transformation and crisis support models for university scientific and investment activities.

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ЦИФРОВІЗАЦІЯ АНТИКРИЗОВОГО УПРАВЛІННЯ ТА ЗБАЛАНСОВАНІСТЬ РЕСУРСІВ ДЛЯ ЗАБЕЗПЕЧЕННЯ ЯКОСТІ ОСВІТИ В ПЕРЕМІЩЕНОМУ УНІВЕРСИТЕТІ

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Анотація. Повномасштабне вторгнення Росії в Україну для університетів, які опинились на тимчасово окупованих територіях або в зоні бойових дій, стало точкою біфуркації і пошуку інструментарію виживання в екстремальних умовах. Вектором антикризового управління в ХДУ став пошук балансу ресурсів (матеріальних, фінансових, людських, комунікаційних, управлінських, інноваційних) для забезпечення належної якості освітніх послуг. Трансформація бізнес-процесів, прискорена цифровізація та пошук балансу в умовах обмежених ресурсів дозволили впровадити антикризові заходи і забезпечити трансформацію академічної політики, спрямовану на забезпечення якості освітнього процесу в умовах застосування дистанційних технологій навчання, синхронних і асинхронних форматів взаємодії. Завдяки впровадженню новітнім університетом продовжив реалізацію освітньої політики, спрямовану на забезпечення розширених можливостей побудови індивідуальної освітньої траєкторії здобувачів з вибірковою складовою освітніх програм до 35%, реалізацію сертифікатних програм і використанням сучасних освітніх ресурсів світових платформ Udemu, Coursera тощо. Метою статті є узагальнення та систематизація досвіду антикризового управління переміщеним університетом і моделювання його ключових бізнес-процесів в умовах цифрової трансформації і обмежених ресурсів функціонування (на прикладі Херсонського державного університету).

У статті визначені фактори зовнішнього та внутрішнього середовища, які впливають на функціонування університету та якість освіти в екстремальних умовах функціонування, представлені ключові контексти прискореної цифрової трансформації академічного процесу та компенсаційні інструменти антикризового освітнього менеджменту; розкриті ключові складові трансформації освітнього процесу і забезпечення його якості в умовах війни; продемонстровано приклади пошуку балансу ресурсів на основі аналізу індикаторів та показників організаційної структури освітнього процесу. Досвід антикризового управління і прогнозування бізнес-процесів може стати корисним для всіх закладів освіти, що функціонують в кризових умовах. Перспективним напрямком дослідження є розробка програми антикризових заходів на основі цифрової трансформації, а також моделей кризової підтримки наукової і інвестиційної діяльності університету.

Ключові слова: антикризове управління; управління бізнес-процесами; якість освітнього процесу; цифрова трансформація; балансування ресурсів; заклади вищої освіти.

