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COMPETITIVE AND INTEGRATIVE BENCHMARKING TO ENSURE THE COMPETITIVENESS OF HIGHER EDUCATION INSTITUTIONS

Urgency of the research. *International practice demonstrates that competitive and integrative benchmarking competition gives way to cooperation that may eventually become the driving force in changing the philosophy of the modern system of higher education.*

Target setting. *The study of theoretical and methodological approaches to maintaining effective competitive and integrative benchmarking along with carrying out applied projects facilitating its implementation into the operation of national HEIs seems timely and relevant.*

Actual scientific researches and issues analysis. *A study of characteristics of benchmarking as a management tool in education was accomplished by such scholars as N. Jackson, H. Lund, M. Udam, M. Heidmets, Kuźmicz K., Schwarz S., Wersterheijden D.*

Uninvestigated parts of general matters defining. *The scientists have not yet sufficiently developed the comprehensive analysis of the competitive and integrative benchmarking, including the Higher Eeducation Institutions.*

The research objective. *The article aims to prove the feasibility of competitive and integrative benchmarking to ensure the competitiveness of Higher Education Institutions and their adaptation to market and institutional realia of the domestic economy.*

The statement of basic materials. *The article justifies the feasibility of competitive and integrative benchmarking increasing the competitiveness of national universities. Toolkit of process-oriented approach of benchmarking is based on justification of the reference strategy by comparing competitive advantages in selected 4P-subsystems of benchmarking of management in top universities.*

Conclusions. *The concept of the competitive and integrative benchmarking, developed by the authors as a marketing and management tool facilitating the capacity of Higher Education Institutions to build and maintain their competitive edge, is a synthesis of the competitive analysis mechanism and marketing interaction for the purpose of adapting the best practices by identifying benchmark organizations.*

Keywords: *competitive and integrative benchmarking; approach focuses on the process; competitive analysis.*

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КОНКУРЕНТНО-ІНТЕГРАЦІЙНИЙ БЕНЧМАРКІНГ У ЗАБЕЗПЕЧЕННІ КОНКУРЕНТОСПРОМОЖНОСТІ ВИЩИХ НАВЧАЛЬНИХ ЗАКЛАДІВ

Актуальність теми дослідження. *Міжнародна практика показує, що все більш актуальним стає застосування конкурентно-інтеграційного бенчмаркінгу, при якому відбувається відмова від суперництва на користь співробітництва, що згодом може стати рушійною силою в зміні філософії сучасної системи вищої освіти.*

Постановка проблеми. *Доцільним є дослідження теоретико-методологічних підходів до ефективної організації конкурентно-інтеграційного бенчмаркінгу і створення прикладних розробок, що полегшують його впровадження в діяльність вітчизняних вищих навчальних закладів.*

Аналіз останніх досліджень і публікацій. *Вивченню бенчмаркінгу як інструменту управління в сфері освіти прісвячені роботи таких дослідників, як Jackson N., Lund H., Udam M., Heidmets M.; Kuźmicz K., Schwarz S., Wersterheijden D.*

Виділення недосліджених частин загальної проблеми. *Науковцями ще недостатньо опрацьовані питання комплексного аналізу конкурентно-інтеграційного бенчмаркінгу, в тому числі і у вищих навчальних закладах.*

Постановка завдання. *Стаття поклана обгрунтувати доцільність застосування конкурентно-інтеграційного бенчмаркінгу в забезпеченні конкурентоспроможності вищих навчальних закладів та адаптації його до ринково-інституційних реалій вітчизняної економіки.*

Виклад основного матеріалу. *У статті обгрунтовано доцільність застосування конкурентно-інтеграційного бенчмаркінгу підвищення конкурентоспроможності вітчизняних вищих навчальних закладів. Інструментарій провесно-орієнтованого підходу бенчмаркінгу базується на обґрунтуванні еталонної стратегії шляхом порівняння конкурентних переваг по виділеним 4Р–підсистемам бенчмаркінгу управління кращих університетів.*

Висновки. *Розроблена концепція конкурентно-інтеграційного бенчмаркінгу як маркетингового і управлінського інструменту забезпечення конкурентоспроможності вищих навчальних закладів синтезує механізми конкурентного аналізу і маркетингової взаємодії з метою адаптації передового досвіду за допомогою виявлення еталонних організацій.*

Ключові слова: *конкурентно-інтеграційний бенчмаркінг; процесно-орієнтований підхід; конкурентний аналіз.*

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Urgency of the research. Competition in the education services market challenges higher education institutions (HEIs) for continuous improvement in all areas of their activities. The world's leading universities traditionally heading international rankings and associated with high quality education and research, in order not to lose their competitiveness are forced to permanently sustain their achievements and performance, as well as to be proactive. For universities that are world leaders or aspire to become such, a focus on innovations to provide them strong and unique competitive advantages in all their activities is paramount. For universities who are just entering the international market it might be useful to employ benchmarking, a tool that has proved its efficiency in the corporate sector but yet is insufficiently applied in the field of education [1].

Benchmarking is a process of identifying, assessing and adapting best practices and experience of other organizations to enhance one's company performance [2].

International practice demonstrates that to gain competitive advantage it is critical to study, understand and to use the experience from rivals who have already achieved success in a specific area. In this case mere application of comparative analysis methodology, or benchmarking, is not enough. Instead, implementation of competitive and integrative benchmarking (CIB) is becoming increasingly relevant. With CIB competition gives way to cooperation that may eventually become the driving force in changing the philosophy of the modern system of higher education [3].

Target setting. Apparently, the methodology as suggested in this paper is not the only effective and efficient one to enhance quality and improve HEIs' performance. In management there is a variety of tools and technologies that are successfully used in the system of higher education: Total Quality Management (TQM), standardization by ISO 9000 version, the Balanced Scorecard (BSC) and others. For universities seeking academic excellence and leadership, who monitor latest management trends, study their competitors and partners, struggle for customers (students), competitive and integrative benchmarking might become the most effective tool for identifying and adapting best practices.

In this context, the study of theoretical and methodological approaches to maintaining effective competitive and integrative benchmarking along with carrying out applied projects facilitating its implementation into the operation of national HEIs seems timely and relevant. The research on the CIB theory, methodology and tools is aimed at improving the HEIs competitiveness, focused on providing further insights to understanding the mechanisms of the selection of model (reference) strategies in the field of higher education, which is a priority task of both academic and practical significance addressing the image-driven issues of the national universities within international market of education services.

Actual scientific researches and issues analysis. Building a contemporary conceptual framework for HEI management is based on a wide range of research and applied works of scholars and practitioners in various fields of management and marketing, such as Kuźmicz K. [4], Schwarz S., Wersterheijden D. [5] and others.

In the area of education, benchmarking started to be used relatively recently. International practice reveals different approaches to the definition of benchmarking in the field of education services. A study of characteristics of benchmarking as a management tool in education was accomplished by such scholars as Jackson N., Lund H. [3], Udam M., Heidmets M. [6],. Paliulis N., Labanauskis R. [7], Sankey M., Padro F. [8].

However, all these authors were mainly confined to fragmentary and often contradictory definitions. None of them set an objective to carry out a comprehensive analysis of the competitive and integrative benchmarking, including the HEIs, and considered the issue in relation to a specific research topic.

To enhance the implementation of benchmarking in higher education the European Commission in 2006-2010 funded the project «Benchmarking in European Higher Education» [9;10]. This study was focused on the recognition of benchmarking as «a voluntary process of self-evaluation and self-improvement through regular and general comparisons of practice and performance against similar organizations. This process enables an organisation to identify its strengths and weaknesses, and learn how to adapt and improve organisational processes in order to cope with the increasing competition» [11].

Uninvestigated parts of general matters defining. However, the issues of systematization and dissemination of advanced standards of academic excellence are extremely diverse and complex,

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thus bringing about the need for further research in this area, including system analysis and theoretical generalization of the management approaches based on the competitive integrative benchmarking.

There is also lack of evidence on benchmarking as an independent competitive strategy and a business process, as well as specifically related to competitive and integrative benchmarking.

Apart from using traditional methods to ensure the HEIs competitiveness, it is essential to develop new approaches and management technologies contributing to creating favorable institutional environment and incentives for successful delivering of high quality education and training activities. From this perspective, benchmarking is a key instrument in identifying and adapting the best practices.

The relevance of the above issue, lack of fundamental research on specific characteristics of benchmarking, along with its great practical significance determined the choice of the purpose and objectives of this study.

The research objective. The article aims to ground the feasibility of competitive and integrative benchmarking to ensure the competitiveness of higher education institutions and their adaptation to market and institutional realia of the national economy.

The purpose of the study specified the following objectives reflecting its logical structure and sequence:

    – to explore the nature and content of benchmarking as a marketing tool to ensure the HEIs competitiveness in the context of globalization;

    – to develop a methodological toolkit for competitive and integrative benchmarking at HEIs;

    – to identify the major competitive strategies of HEIs in their intentions to gain excellence;

    – to suggest a conceptual process model of competitive and integrative benchmarking for HEIs.

The statement of basic materials. Market institutional paradigm of formation and development of a competitive and integrative benchmarking of HEIs is based on the methodological principles of effective strategic management concepts, competitive advantages, marketing management, etc. and involves specific phases (iterations) that are performed by the tools of cluster, factor and discriminant analyses and benchmark comparison.

The toolkit of a competitive and integrative benchmarking relies upon a combination of competitive analysis of partner HEIs activities and their marketing interactions. The combination of partnerships and competitive analysis allows to provide a dynamic assessment of the current status, as well as to anticipate qualitative changes subject to the active position of an HEI towards its strategic competitiveness.

The institutionalization of the competitive and integrative benchmarking paradigm as a traditional benchmarking development trend results in a new business strategy based on collaboration and cooperation with other HEIs in the area of disseminating information to improve individual education processes and enhance the overall competitiveness of HEIs [12]. The competitive integrative benchmarking process involves passing through the stages of planning, research, analysis, adaptation and coordination; providing a framework for the partnership benchmarking relations, which were adopted as reference standards; procedures for information accumulation and analysis, as well as the development of new outcome-based strategies for competitive behavior.

The cyclical nature of a competitive and integrative benchmarking leading to changes in the scope of HEI activities, starting from HEI performance audit up to monitoring and adjustment of benchmark comparison results, triggers a continuous benchmarking process which culminates in a transition to a new cycle of improvement («the wheel of a competitive and integrative benchmarking») with the purpose of ensuring an ongoing HEI competitiveness increase.

The process of building a system of a competitive and integrative benchmarking through the case study of Kyiv National University of Technology and Design (KNUTD) is as follows. At the first stage of cluster analysis, using a K-means method [13], the HEIs clustering was carried out by 4P subsystems for best universities benchmarking management: 1) Personnel Management (People) 2) Partnership Relationships (Partnership) 3) Process Management (Processes) 4) Education Services (Products). The cluster analysis of 14 Ukrainian universities has enabled to identify 3 clusters by their development level: the 1st – with the highest level of development, the 2nd – with medium and the 3rd – with minimum development level.

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Based on the clustering results for each of the 4P subsystems for best universities benchmarking management, Tab. 1 presents the following cluster structure.

Table 1

HEIs clustering by 4P benchmarking subsystems

Subsystems	1st cluster	2nd cluster	3rd cluster
1	2	3	4
1P – Personnel Management (People)	- Taras Shevchenko National University of Kyiv; - Vadym Hetman Kyiv National Economics University	- Kyiv National University of Technology and Design; - National University of "Kyiv-Mohyla Academy"; - National Aviation University	- Kyiv National University of Economics and Trade; - Kyiv National Linguistic University; - KROK University of Economics and Law; - Open International University of Human Development "Ukraine"; - Kyiv International University; - European University; - International University of Finance; - University of Modern Knowledge; - University of Emerging Technologies
2P – Partnership Relationships (Partnership)	- Kyiv National Linguistic University; - National University of "Kyiv-Mohyla Academy"	- KROK University of Economics and Law; - Open International University of Human Development "Ukraine"; - European University; Kyiv International University; - International University of Finance; - University of Modern Knowledge; - University of Emerging Technologies	- Kyiv National University of Technology and Design; - Vadym Hetman Kyiv National Economics University; - Kyiv National University of Economics and Trade; - National Aviation University
3P – Process Management (Processes)	- National Aviation University	- Vadym Hetman Kyiv National Economics University; - Kyiv National University of Technology and Design; - Taras Shevchenko National University of Kyiv; - KROK University of Economics and Law; - Open International University of Human Development "Ukraine"; - Kyiv International University; - European University; International University of Finance; - University of Modern Knowledge	- Kyiv National University of Technology and Design; - Kyiv National Linguistic University; - National University of "Kyiv-Mohyla Academy"; - University of Emerging Technologies
4P – Education Services (Products)	- Taras Shevchenko National University of Kyiv	- Vadym Hetman Kyiv National Economics University; - Kyiv National University of Technology and Design; - National Aviation University; - National University of "Kyiv-Mohyla Academy"	- Vadym Hetman Kyiv National Economics University; - Kyiv National Linguistic University; - KROK University of Economics and Law;

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<div align="right">Continuation of Table 1</div>

1	2	3	4
			- Open International University of Human Development "Ukraine"; - Kyiv International University; - European University; - International University of Finance; - University of Modern Knowledge; - University of Emerging Technologies

At the following stage by Joining (tree clustering) methods of cluster analysis the reference (benchmark) universities were defined for each of the 4P benchmarking subsystems.

Based on the analysis, in subsystem 1P the reference (benchmark) universities are HEI1 Taras Shevchenko National University of Kyiv and HEI2 – Vadym Hetman Kyiv National Economics University. Within the subsystem 2P – Partnership Relationships (Partnership) the benchmarks are: Kyiv National Linguistic University and the National University of "Kyiv-Mohyla Academy", in the subsystem 3P – Process Management (Processes) – the benchmark is the National Aviation University, for the subsystem 4P – Educational Services (Products) the benchmark is Taras Shevchenko National University of Kyiv.

Through the methods of factor analysis the degree of influence of individual indicators of HEI performance on the development level of each of the 4P benchmarking subsystems was determined.

Hence, for the first subsystem, "Personnel Management (People)" the results of the analysis demonstrated (Fig. 1) that the dependent variable (1P) is influenced by following indicators: the number of academic and teaching staff (X1), the number of Doctors of Sciences (X2), the number of Professors (X3), the number of PhDs (X4), the number of Associate professors (X5). This group indicators effect explains 84,4578% of variance.

Factor Loadings (Unrotated) (Data1P)
Extraction: Principal components
(Marked loadings are >,700000)

Variable	Factor 1
X1	0,950943
X2	0,980496
X3	0,935084
X4	0,975112
X5	0,729383
Expl.Var	4,222891
Prp.Totl	0,844578

Fig. 1. The results of factor analysis of the influence of individual indicators on the 1P value 'People' at reference universities (MS Statistica 10 listing)

All indicators have a boosting effect on the 1P value of the reference universities. The dependence of multi-factor influence on the 1P (People) value of the reference universities (Taras Shevchenko National University of Kyiv and Vadym Hetman Kyiv National Economics University) is as follows:

$$1P = \frac{1}{8,44578} \times (0,9509943 x_1 + 0,980496 x_2 + 0,935084 x_3 + 0,975112 x_4 + 0,729383 x_5)$$

For the second subsystem 2P (Partnership), the results of the analysis showed that the dependent variable (2P) depends on such indicators as: transparency index (X6), the number of grants (X7), the number of patents (X8), licensing and commercial contracts, other paid services (X9) and research funding (X10). The following indicators: the number of publications in Scopus (X11), the number of

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citations in Scopus (X12) and the Hirsch index (X13) have no effect on the 2P value and. The indicators X6 – X10 account for 48,3505% of the total variance.

The indicators X6 – X10 have a boosting effect on the 2P value of the reference universities. The dependence of multi-factor influence on the 2P (Partnership) value of the reference universities (Kyiv National Linguistic University and the National University of "Kyiv-Mohyla Academy") is as follows:

$$2P = \frac{1}{4,83505} \times (0,860119x_6 + 0,723303x_7 + 0,713402x_8 + 0,856833x_9 + 0,913730x_{10})$$

For the third 3P subsystem (Processes) the results of the analysis revealed that the dependent variable (3P) is influenced by the following indicators: the cost of fixed assets (X14), the number of bachelor's degrees earned (X15), the number of master's degrees earned (X16), the number of students enrolled in undergraduate programs (X19) and the number of students enrolled in master's degree programs (X20). The following indicators: the number of doctoral theses defended (X17), the number of PhD theses defended (X18) and the number of pos-graduates enrolled (X21) have no effect on the 3P value. That is, the indicators X14 – X16; X19 – X20 account for 54,5749% of the total variance.

The indicators $X_{14} – X_{16}$; $X_{19} – X_{20}$ have a boosting effect on the 3P value of the reference university. The dependence of multi-factor influence on the 3P (Processes) value of the reference university (National Aviation University) is as follows:

$$3P = \frac{1}{4,365995} \times (0,927853x_{14} + 0,568464x_{15} + 0,975572x_{19} + 0,956318x_{20})$$

For the fourth 4P subsystem (Products) the results of the analysis showed that the dependent variable (4P) depends on such indicators as the number of undergraduate majors (X22), license capacity in bachelor's degree programs (X25) and the number of fields of study under international agreements (X28). The following indicators: the number of fields of study within master's degree programs (X23), license capacity in the master's degree programs (X24), the number of research topics (X26) and the number of commercial-based research topics (X27) do not affect the 4P value. The indicators X22, X25 and X28 account for 50,7616% of the total variance.

The indicators X_{22}, X_{25}, X_{28} have a boosting effect on the 4P value of the reference university. The dependence of multi-factor influence on the 3P (Products) value of the reference university (Taras Shevchenko National University of Kyiv) is as follows:

$$4P = \frac{1}{3,553311} \times (0,85125x_{22} + 0,871697x_{25} + 0,775653x_{28})$$

The regulation of the change management process was performed through the methods of discriminant analysis. The discriminant analysis of the diagnosis of the degree of project changes implementation were made for each of the 4P benchmarking subsystems.

The results of discriminant analysis of all benchmarking 4P subsystems are presented in Tab. 2.

Table 2

The diagnostics of the degree of project changes implementation at HEI by benchmarking 4P subsystems

Identification by subsystems	Discriminant analysis equation	Notations
1	2	3
The project changes in the subsystem 1P occur at $Y_{1=max\{Y_{1,i}\}}$	$Y_{1.1} = 18343,4 + 238,9x_1 + 31172,4x_2 + 23917,7x_3 + 638,8x_4 + 313,2x_5$	the number of academic and teaching staff (X_1), the number of Doctors of Sciences (X_2), the number of Professors (X_3), the number of PhDs (X_4), the number of Associate professors (X_5)

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Continuation of Table 2

1	2	3
	$Y_{1.2} = 16343,4 + 208,9x_1 + +20172,4\,x_2 + 19917,7x_3 + +548,8x_4 + 353,2x_5$	
	$Y_{1.3} = 11650,9 + 180x_1 + 16861,1\,x_2 + 16772,7x_3 + 669,4x_4 + 460,9x_5$	
The project changes in the subsystem 2P occur at $Y_{2=\max\{Y_{2,i}\}}$	$Y_{2.1} = 161,787 + 0,237x_6 - 0,187x_7 + 36,721x_8 - 8,419x_9 + 13,333x_{10}$	transparency index (X_6), the number of grants (X_7), the number of patents (X_8), licensing and commercial contracts, other paid services (X_9), research funding (X_{10})
	$Y_{2.2} = 93,9699 + 0,007914x_6 - 0,005863x_7 + 0,810249x_8 - 0,202059x_9 + 9,13x_{10}$	
	$Y_{2.3} = 124,337 + 0,202x_6 - 0,153x_7 + 28,627x_8 - 6,597x_9 + 5,32x_{10}$	
The project changes in the subsystem 3P occur at $Y_{3=\max\{Y_{3,i}\}}$	$Y_{3.1} = 16722,4 - 0,5x_{14} + 0,2x_{15} - 1,6x_{16} + 0,5x_{19} - 0,9x_{20}$	the cost of fixed assets (X14); the number of bachelor's degrees earned (X15), the number of master's degrees earned (X16), the number of students enrolled in undergraduate programs (X19), the number of students enrolled in master's degree programs (X20)
	$Y_{3.2} = 1091,60 + 0,15x_{14} - 0,07x_{15} + 0,42x_{16} - 0,14x_{19} + 0,69x_{20}$	
	$Y_{3.3} = 1417,88 + 0,18x_{14} - 0,09x_{15} + 0,49x_{16} - 0,16x_{19} + 1,03x_{20}$	
The project changes in the subsystem 4P occur at $Y_{4=\max\{Y_{4,i}\}}$	$Y_{4.1} = -141,927 + 0,478x_{22} + 0,096x_{25} - 2,389x_{28}$	the number of undergraduate majors (X_{22}), license capacity in bachelor's degree programs (X_{25}), the number of fields of study under international agreements (X_{28})
	$Y_{4.2} = -5,7484 - 0,04486x_{22} + 0,00529x_{25} - 0,40593x_{28}$	
	$Y_{4.3} = -1,6873 - 0,00826x_{22} - 0,00489x_{25} + 0,16538x_{28}$	

The combination of methodological tools of cluster, factor and discriminant analyses allows for a more specific insight to competitive and integrative benchmarking from a dynamic perspective, that is, not only to assess the current state of the HEIs under study but also to provide a rather clear qualitative forecast subject to a University proactive attitude towards its strategy change. The results of the comparative critical SWOT analysis enable to evaluate the achievement level against the benchmark indicators (Tab. 3).

The comparative critical SWOT analysis of the strategic positions achieved by the universities successfully complements other analytical techniques employed. Their application together provides a better opportunity to assess the overall situation in the system of higher education, as well as the position of a particular HEI under study.

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Matrix diagrams created within the four-phase pattern of a quality function structuring allow to formalize the search across concepts at different levels of the system.

In the transition from one phase to another the "consumer voice" falls initially towards the design of market-demand education services, then tends to the need for appropriate education process delivery and quality assurance guidelines, resulting in international certification of education programs quality.

Table 3

House of Quality for HEI

		Weight (Pi)	Ki norm	Vi	Number of fields of study	High-demand fields of study, popular in the labor market	Effectiveness of fixed assets utilization (lecture rooms and laboratory facilities)	Effectiveness of lecture rooms and laboratory facilities utilization	Double degree programs opportunities (one – in a partner University abroad)	International grants obtained	Internal advertising affecting the University rankings	Availability of a rating system	Number of staff with academic degrees	Share of certified international education programs
Consumer demands	Range of education services	0;4	0;107	0;247	●	●			△	△				
	Efficiency of fixed assets utilization	0;2	0;184	0;186			●	●	△	△	○		△	△
	Advanced teaching / research methods	0;1	0;097	0;093	○									●
	International grant opportunities for students/postgraduates/ academic staff	0	0;169	0;104						●				
	Advertising	0	0;256	0;142	○						●			
	High quality academic staff	0;3	0;184	0;226		△			○			●	●	△
	Hj норм				0;2	0;2	0;1	0;1	0;1	0	0	0;1	0;13	0;06
	W				0;198	0;02	0;099	0;113	0;065	0;066	0;108	0;119	0;13	0;073

Comparative benchmarking (scale 1–10):

○ – Taras Shevchenko National University of Kyiv
● – Vadym Hetman National Economics University
□ – Kyiv National Linguistic University
■ – National Aviation University
◇ – National University of "Kyiv-Mohyla Academy"
▼ – Kyiv National University of Technology and Design

	Number of fields of study	High-demand fields of study, popular in the labor market	Effectiveness of fixed assets utilization (lecture rooms and laboratory facilities)	Effectiveness of lecture rooms and laboratory facilities utilization	Double degree programs opportunities (one – in a partner University abroad)	International grants obtained	Internal advertising affecting the University rankings	Availability of a rating system	Number of staff with academic degrees	Share of certified international education programs
Critical need for change j–TX on the basis of comparative benchmarking results (Lj)	88	172	376	195	280	63	357	78	282	105
Lj norm	0;044	0;086	0;188	0;098	0;140	0;032	0;179	0;039	0;141	0;052
Economic simplicity of change j–TX towards a specified target (DTj)	7	8	6	6	9	8	6	4	3	7
DTj norm	0;109	0;125	0;94	0;94	0;14	0;125	0;94	0;063	0;046	0;109
Economic simplicity of change j–TX towards a specified target (DEj)	5	7	8	8	10	7	7	6	6	7
DEj norm	0;07	0;098	0;112	0;112	0;14	0;098	0;098	0;08	0;08	0;098
Overall priority for change j–TX (Tj)	0;413	0;339	1;330	1;260	0;480	0;321	1;327	0;302	0;397	0;329
Tj norm	0;064	0;052	0;205	0;194	0;074	0;049	0;204	0;046	0;061	0;051
Priority characteristics (indicators)			+	+			+			

Notes: ● – high degree of dependence; weight of the indicator equals 9; ○ – medium degree of dependence; weight of the indicator equals 3; △ – low degree of dependence; weight of the indicator equals 1; an empty cell – absence of correlation; weight of the indicator equals 0.

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Conclusions. The purpose and objectives of benchmarking demonstrate its ability to address and handle a range of strategic issues through the mechanism of providing the Universities with all relevant information to improve their performance in response to market challenges. The benchmarking concept is aimed at continuous improvement of HEIs performance and enhancing their competitiveness by focusing on achieving academic excellence in all functional areas. The concept is based on the system analysis and HEIs comparative performance assessment against the achievements of their major competitors in the markets; modern objective trends in science, engineering, technology and other areas development; as well as best international practices in the relevant fields.

Competitive and integrative benchmarking is a process leading to the change in the content of activities, contributing to achievement of the best results and gaining competitive advantage. A prerequisite for the optimal utilization of a competitive and integrative benchmarking is the selection of benchmarking principles; detailed and systematic record of all information and data on the analysis of excellence and new ideas in various fields. The concept of the competitive and integrative benchmarking, developed by the authors as a marketing and management tool facilitating the capacity of HEIs to build and maintain their competitive edge, is a synthesis of the competitive analysis mechanism and marketing interaction for the purpose of adapting the best practices by identifying benchmark organizations based on partnership and cooperation.

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