DOI: 10.55643/fcaptp.3.62.2025.4813

INNOVATIVE PERSONNEL MANAGEMENT OF ENTREPRENEURIAL EDUCATIONAL INSTITUTIONS IN MARKETING STRATEGY AND SMART FINANCIAL POLICY

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Received: 30/04/2025
Accepted: 17/06/2025
Published: 30/06/2025

ABSTRACT

The article reveals the theoretical foundations and practical aspects of innovative personnel management in entrepreneurial higher education institutions of Ukraine, taking into account the role of marketing strategy and smart financial policy. The study is based on the understanding that in modern conditions of transformation of the educational space, the effectiveness of the functioning of entrepreneurial higher education institutions largely depends on the ability of institutions to flexibly respond to external challenges, invest in human capital and form sustainable competitive advantages through internal renewal of the organizational management model. Particular attention is paid to the analysis of the human resource potential of institutions, the dynamics of employee training, as well as the impact of the volume of expenses on marketing strategy and smart communication policy on the quantitative indicators of the student contingent. The study revealed that the most sustainable development is demonstrated by an institution in which there is a systematic combination of three key elements: professional growth of personnel, strategic marketing activity and optimal financial planning. On the contrary, the lack of a holistic approach leads to a decrease in efficiency even with high costs or the presence of human resource potential. Thus, achieving success in entrepreneurial higher education institutions in modern conditions requires the integration of management tools into a single innovative development model. The article substantiates practical recommendations for improving the mechanisms of personnel management in entrepreneurial higher education institutions with an orientation towards strengthening the role of digital solutions, forming value propositions for applicants, and increasing the transparency of financing and long-term planning of educational processes.

Keywords: innovative personnel management, entrepreneurial higher education institution, marketing strategy, smart financial policy, human resource potential

JEL Classification: I23, M12, G41, L26

INTRODUCTION

In the 21st century, rapid changes in the field of education, the digital transformation of society, profound demographic shifts and changes in the structure of demand for educational services have presented higher education institutions with new challenges. This is especially true for the private sector, where competition for applicants is combined with the need for self-sufficiency, strategic resource management and continuous improvement of organizational processes. In this context, innovative personnel management becomes crucial as a tool for improving the quality of the educational process, the image of the institution and its sustainability in the educational market. Entrepreneurial educational institutions, which operate at the intersection of academic standards and market mechanisms, must form a special type of management - flexible, effective, and focused on achieving clear goals. At the centre of this model is the staff - as the main carrier of knowledge, experience, creative potential and reputational value of the institution. That is why human resource management in such conditions goes beyond the traditional administrative approach and is transformed into an innovative practice that includes strategic planning of personnel development, digital analytics, flexible

workload management, support for advanced training and stimulation of internal growth.

Innovative personnel management in this study is considered as a systemic set of solutions that combines personnel strategies with external tools for promoting the institution, such as marketing policy and smart financial management. The latter becomes especially important in conditions of limited resources: it is not only about the effective distribution of finances but also about sensitivity to changes, designing development scenarios, and targeted financing of priority areas, including work with personnel. The integration of these elements creates a new quality of the management process, which allows achieving results even in conditions of a general reduction in state support and high turbulence in the external environment. One of the determining indicators of the effectiveness of personnel management in entrepreneurial higher education institutions is the share of scientific and pedagogical employees who undergo regular advanced training. This is not just an indicator of activity - it is a marker of the institution's ability to stimulate professional development, retain qualified specialists, and respond to the demands of the modern student and the labour market. In combination with the number of personnel, workload, position structure and scientific activity, these factors make it possible to objectively assess the internal potential of higher education institutions. Marketing strategy in the conditions of modern education is also changing its nature. It is no longer limited to advertising or branding but is becoming an integral part of educational planning. Through strategic communications, creating value propositions for applicants and positioning the university in the public space, marketing determines the effectiveness of attracting new students. A direct relationship between spending on marketing strategy and the growth of the contingent has been identified in a number of studies, but it is important to how these resources are related to internal changes - in particular in the human resources management system. After all, marketing without a professional team does not have a sustainable effect. Smart financial policy, in turn, is based on the principles of transparency, analytics and adaptability. For entrepreneurial higher education institutions, this means the need to make decisions based on data, forecasts and scenarios. Financial planning should take into account not only the amount of income but also the quality of investment in human capital and infrastructure, which ensures the growth of the institution's efficiency. The integration of finance, personnel and marketing creates a new management circuit - dynamic, but at the same time strategically aligned.

At the same time, assessing the effectiveness of such integrated management decisions requires appropriate analytical tools. This study uses the desirability function as a method for a generalized assessment of the quality of innovative personnel management in combination with marketing costs and the dynamics of the number of students. This allows you to get a holistic picture that takes into account the multifactorial impact and reveals the weaknesses and strengths of management models in selected educational institutions. Thus, the relevance of the topic is due not only to the need to modernize educational management but also to the need to rethink approaches to resource management in conditions of instability. Entrepreneurial HEIs in Ukraine today have every reason to become a model of effective and innovative management - provided that there is a targeted integration of personnel, marketing and financial policies. This is the subject of research in this article. The purpose of the article is to theoretically substantiate and empirically study the relationship between innovative personnel management, marketing strategy and smart financial policy in entrepreneurial higher education institutions, as well as to assess their impact on the quality of educational activities and the number of students based on the application of the integral desirability function.

LITERATURE REVIEW

The topic of innovative personnel management in entrepreneurial educational institutions in the context of marketing strategy and smart financial policy is at the intersection of several scientific areas, each of which is actively researched separately, but their integration into a single conceptual model is still in the development stage. The theoretical principles of strategic human resource management are quite widely presented in scientific sources, especially in the field of higher education, which is increasingly considered as an independent participant in the educational services market with entrepreneurial potential. The scientific article by Palaščáková et al. (2024) explores social intelligence in management and gender aspects of self-education, which are critically important for an innovative approach to personnel in educational institutions. Personnel management in smart organizations requires an understanding of internal motivation and psychosocial factors that directly affect the effectiveness of teams.

Furman et al. (2023) investigate employee motivation and incentives as a key aspect in the development of innovative HR management in educational institutions with an entrepreneurial bias. After all, an effective marketing strategy directly depends on the satisfaction and activity of the teaching staff. The scientific work of George and Prabhu (2003) is extremely important because it considers the role of financial institutions in the development of innovation and entrepreneurship. The above applies to smart financial policy: financial management mechanisms should promote innovation and entrepreneurial activity in the field of education.

The topic of the scientific articles Gryshova et al. (2019) and Onopriienko et al. (2023) are devoted to the innovative development of the educational services market. It directly supports the idea that strategic management (in particular marketing) should be based on sustainable innovative approaches to the structuring of personnel and the content of educational products. Vasylchak et al. (2022) consider state regulation of employment and innovative entrepreneurship in territorial communities, which is important for positioning educational institutions as active players in the labour market, capable of adapting personnel policy to the challenges of the modern market.

The scientific article Mizrak (2023) discusses the competitiveness of organizations through entrepreneurial education, HRM and innovation, which is practically an ideal basis for the concept of integrating HR management with marketing and finance in a new type of educational institution. Kubitskyi et al. (2023) and Volk et al. (2024) highlight innovative approaches to the management of higher education institutions as a means of developing education. Supporting the idea that management in higher education should be entrepreneurially flexible, strategic and open to financial and marketing tools.

The scientific article on the case method by Kopishynska et al. (2021) in the field of IT and project management is relevant in view of pedagogical innovations and practice-oriented training that improve the qualifications of personnel in educational enterprises. This approach to staff training strengthens the strategic marketing positions of the institution through the value differentiation of the educational service.

Ovcharenko et al. (2022) investigate spatial organization and ecoclusters related to educational topics, since ecoclusters as elements of the infrastructure of innovative development can be a platform for entrepreneurial educational initiatives, as well as a source of new approaches to personnel organization and brand formation of educational institutions as an innovation partner. Mittal et al. (2018) conducted a critical review of Industry 4.0 maturity models, which is directly related to the concept of smart financial policy: educational institutions can use these models for the digital transformation of HRM and finance to ensure the technological competitiveness of personnel and services.

Despite the fact that the scientific article by Barras (1990) is a classic, it is fundamental for understanding interactive innovations in service industries, reflecting the deep logic of the transition of education to a market model with a high level of flexibility in human resources management. Carayannis et al. (2006) introduce the concept of technological learning for entrepreneurship, which directly concerns educational institutions of an entrepreneurial type. Personnel management in such a system should be strategically oriented towards the development of intellectual capital. Voronina et al. (2022) considered the strategic management of competitive advantages in innovative industries. The article has direct practical significance for the educational environment, where personnel is a key resource for creating advantages in the educational services market. Mazur et al. (2021) developed a controlling system in financial management that is the basis for developing smart financial strategies in educational institutions.

Massa and Testa (2008) investigate the differences in the vision of innovation between business, science and politicians, which is extremely important for educational institutions that strive for entrepreneurial autonomy. The conclusions of the scientific article allow for a deeper understanding of how internal and external goals can be harmonized through innovative personnel management. Azizi et al. (2021) implemented a systematic review of HRM strategies during the COVID-19 pandemic, demonstrating the need for a flexible, innovative approach to human resource management, which is critically important in the modern system of educational entrepreneurship and provides a basis for implementing adaptive practices in the development strategy of higher education institutions.

Kubitskyi et al. (2024) investigate the impact of innovative technologies on global competitiveness, which concerns the strategies for promoting educational institutions in the global market. Kummitha (2019) raises the issue of entrepreneurship in smart cities, where educational institutions become intellectual hubs. Lee and Trimi (2018) formulate the concept of innovation as the basis of the smart future, which is ideally consistent with the requirements for innovative human resource management in educational institutions that seek to transform into entrepreneurial and technologically adaptive organizations. Zhu et al. (2021) focus on intelligent fraud detection systems in finance, which is relevant for the formation of smart financial policies in the management of educational structures. Understanding digital risks helps to build a safe and transparent financial model. Hiltrop (1996) examines the impact of HRM on organizational effectiveness. This provides a theoretical framework for building strategic HRM in higher education institutions that supports innovation and market potential.

Lengnick-Hall et al. (2009) examine the evolution of strategic HRM, which helps to understand how HRM has become a key element of competitive advantage and adaptation in educational entrepreneurship. Kyryliuk et al. (2021) focus on organizational and economic drivers of quality that can be adapted to educational management, especially in the aspects of internal motivation of personnel and resource optimization. Research on the University of Waterloo as an entrepreneurial

DOI: 10.55643/fcaptp.3.62.2025.4813

centre in scientific work Bramwell and Wolfe (2008) demonstrate how educational institutions become catalysts for regional development, thanks to effective personnel and innovative management strategies.

A review of the scientific literature by Macke and Genari (2019) on sustainable HRM shows how sustainable development values are integrated into management practices and financial policies, shaping the long-term strategy of educational organizations. Zoria et al. (2022) focus on investment support for innovative development, which is extremely relevant for educational institutions that need a resource base to implement entrepreneurial strategies. Gryshchenko et al. (2021) present a model of an innovation cluster in the field of education, which is directly related to the formation of a strategic HR system within the educational services market. Wu et al. (2023) investigate competitive analytics and dynamic capabilities that can be adapted to the educational environment: personnel and market analysis is an important part of the marketing strategy of higher education institutions.

An important study by Biletskyi et al. (2024) on innovative management of business structures in the post-war period. Entrepreneurial HEIs in crisis conditions can adopt these mechanisms for financial stabilization and personnel management. The study by Oseredchuk et al. (2022) is directly related to personnel management, as it requires new skills, performance assessment, and technological adaptation of teachers. Ani et al. (2019) assessed the cybersecurity of the workforce in the industry, which is transformed into conclusions for education, in the direction of the need for digital awareness of personnel in the era of digital HRM and smart finance.

Voznyuk et al. (2021) present an interdisciplinary educational technology based on functional brain asymmetry that supports individualized HR approaches in educational entrepreneurship. Zhyvko et al. (2022) investigate the digitalization of financial and management accounting, which is directly related to the transparency of smart finance in higher education institutions and resource management. Bezverkhyi et al. (2019) discuss the creation of integrated reporting, which is critical for the connection between HR management, finance and strategy in the educational context. The official websites of Poltava University of Economics and Trade, Zhytomyr Institute of Economics and Humanities, Open International University of Human Development "Ukraine", Vinnytsia University of Finance and Economics are important as an empirical basis for analyzing current practices of innovative personnel management, marketing solutions and digital changes in entrepreneurial higher education institutions of Ukraine. At the same time, a holistic presentation of the topic of our scientific article as an interconnected system of management, marketing and finance has not yet received sufficient generalization in the world or Ukrainian scientific tradition. This creates a relevant niche for research, which allows us to propose a new management model based on the integration of innovations, market strategies and digital financial logic, taking into account the realities of entrepreneurial educational institutions.

AIMS AND OBJECTIVES

The purpose of the article is a comprehensive study of modern approaches to innovative personnel management in the field of higher education, taking into account the peculiarities of the functioning of entrepreneurially oriented institutions, as well as substantiation of practical recommendations for increasing the effectiveness of personnel policy in the private sector of higher education institutions of Ukraine through the integration of strategic HR management with marketing and financial management tools**.** The objectives of the article:

- to analyze the dynamics of the main quantitative indicators of the activities of individual private higher education institutions in Ukraine in 2019–2023;
- to assess the effectiveness of the marketing strategy and smart financial policy of institutions through the prism of their impact on the number of students and human resources potential;
- to apply mathematical models (linear and nonlinear regressions) to predict the number of students in the context of management decisions;
- to conduct an integrated assessment of management quality using the desirability function and determine the level of consistency between personnel, financial and marketing policies.

METHODS

The study of innovative personnel management in private higher education institutions used various methods to assess the effectiveness of management practices and predict future results. The first stage was the analysis of secondary data, which included a study of publications, reports and statistics reflecting key indicators of three private universities in Ukraine. This allowed us to form a general picture of their development over the past few years, in particular, regarding the number

of students, scientific and pedagogical staff and expenses for various aspects of activity, in particular for marketing and financial policy. For a more in-depth analysis, quantitative methods were used, in particular economic and mathematical modelling, which allowed us to build mathematical models of the dependence between key indicators, such as the number of students, marketing expenses and the share of scientific and pedagogical staff who have undergone advanced training. As a result of the use of linear and nonlinear regression models, it was possible to identify significant correlations between these variables, which allows us to predict future changes in the organizational and financial activities of universities. For example, the models showed how improving the qualifications of teachers and increasing marketing costs can contribute to an increase in the number of students.

Another important stage of the study was a comparative analysis of the dynamics of key indicators for the period from 2019 to 2023, which made it possible to assess the effectiveness of each university in various aspects: from social development to capital expenditures. Comparing the results made it possible to build a detailed picture of how different management strategies affect the financial stability and attractiveness of universities in the educational services market. Forecasting based on the obtained models and statistical analysis made it possible to build development scenarios for each university, which is important for planning their further strategy and financial policy.

In general, the methods used made it possible to obtain objective and accurate results that allow a detailed assessment of the effectiveness of innovative personnel management and financial policy in private higher education institutions, as well as to create forecasts for their development in the future.

RESULTS

Innovative personnel management in entrepreneurial higher education institutions within the framework of a marketing strategy and a "smart" financial policy involves a qualitatively new approach to the formation of human resources as a key asset to the competitiveness of an educational institution. This means that personnel are considered not only as an executor of the educational or administrative process but as a strategic participant in creating added value for the educational product.

In this context, management decisions focus on increasing the flexibility, creativity and digital adaptability of personnel, implementing leadership development programs, corporate culture as a resource for the institution's brand, as well as integrating employees into the implementation of marketing goals. Innovative management is focused on ensuring internal mobility, flexible motivation systems, and involving personnel in the development of educational products and services that meet market needs.

Within the framework of a "smart" financial policy, innovative personnel management also means effective planning of personnel policy costs with an orientation towards long-term results: preventing personnel risks, optimizing costs for training and retaining highly qualified specialists, and stimulating internal innovations. Thus, this management serves not only as a tool for stability but also as a driver of change, which strengthens both reputational capital and the economic efficiency of the educational business.

An important stage of the study of innovative personnel management of entrepreneurial educational institutions in the marketing strategy and smart financial policy is the determination of the current state of private entrepreneurial higher education institutions, their characteristics, and key performance indicators. For this study, three private higher education institutions of the central region of Ukraine were selected as case studies: Poltava University of Economics and Trade, Zhytomyr Economic and Humanitarian Institute of the Open International University for Human Development "Ukraine" and Vinnytsia University of Finance and Economics. These institutions were not chosen for the study by chance - each of them embodies the characteristic features of the private higher education sector of the central region of Ukraine while demonstrating different approaches to management, innovation implementation, and adaptation to market conditions. Their activities provide a valuable opportunity to assess the effectiveness of personnel management in the context of the entrepreneurial model of the institution and also allow us to trace the relationship between marketing strategies, smart financial solutions, and competitiveness in the educational market. These higher education institutions operate in regions with different socioeconomic conditions, which allows us to identify both common trends and regional features that are relevant to the formation of a modern model of innovative management in educational entrepreneurship. The dynamics of the main indicators of educational activity of the studied entrepreneurial educational institutions over the last five years are presented in Table 1.

DOI: 10.55643/fcaptp.3.62.2025.4813

Table 1. Dynamics of the main indicators of educational activity of three entrepreneurial educational institutions of Ukraine, 2019-2023.
(*Source: summarized by the authors based on official data from the higher education institutions analyzed)*

Indicators	2019	2020	2021	2022	2023	Absolute deviation 2023 from 2019, +,-	Relative deviation 2023 from 2019, %
Poltava University of Economics and Trade							
Number of students, persons	4856	4916	4784	3513	3696	-1160	76.11
Number of full-time scientific, pedagogical and research workers, persons	204	204	202	167	133	-71	65.20
professor	27	24	24	23	22	-5	81.48
associate professor	177	180	178	144	111	-66	62.71
Theses defended by scientific and pedagogical staff in the reporting year for the degree:							
Doctor of Science	3	2	1	1	0	-3	0.00
Doctor of Philosophy	5	3	1	1	1	-4	20.00
Have undergone advanced training, persons	78	76	94	108	110	32	141.03
The share of scientific and pedagogical and research workers who have undergone advanced training in the total number of scientific and pedagogical workers	38.24	37.25	46.53	64.67	82.71	44.47	X
Load of full-time scientific, pedagogical and research workers on the total contingent of higher education applicants							
per 1 professor students	180	205	199	153	168	-11.85	93.41
per 1 associate professor students	27	27	27	24	33	5.86	121.37
Zhytomyr Institute of Economics and Humanities of the Open International University of Human Development "Ukraine"							
Number of students, persons	21537	21677	21820	21950	22100	563	102.62
Number of full-time scientific, pedagogical and research workers, persons	2488	2496	2504	2512	2520	32	101.29
professor	261	263	265	267	269	8	103.07
associate professor	782	788	794	800	807	25	103.20
Theses defended by scientific and pedagogical staff in the reporting year for the degree:							
Doctor of Science	5	5	4	2	3	-2	60.00
Doctor of Philosophy	7	7	8	2	4	-3	57.14
Underwent advanced training, persons	377	476	496	668	808	431	214.32
Share of scientific and pedagogical and research workers who have undergone advanced training in the total number of scientific and pedagogical workers	15.15	19.07	19.81	26.59	32.06	16.91	X
Load of full-time scientific, pedagogical and research workers on the total contingent of higher education applicants							
per 1 professor students	83	82	82	82	82	-0.36	99.56
per 1 associate professor students	28	28	27	27	27	-0.16	99.44
Vinnytsia University of Finance and Economics							
Number of students, persons	626	631	640	634	650	24	103.78
Number of full-time scientific, pedagogical and research workers, persons	112	110	106	104	101	-11	90.18
professor	29	28	30	30	31	2	106.90
associate professor	15	14	12	13	15	0	100.00
Theses defended by scientific and pedagogical staff in the reporting year for the degree:							
Doctor of Science	2	1	2	0	2	0	100.00
Doctor of Philosophy	4	3	3	2	1	-3	25.00
Have undergone advanced training, persons	74	65	62	60	68	-6	91.89
The share of scientific and pedagogical and research workers who have undergone advanced training in the total number of scientific and pedagogical workers	66.07	59.09	58.49	57.69	67.33	1.26	X
The workload of full-time scientific, pedagogical and research workers on the total contingent of higher education applicants							
per 1 professor students	22	23	21	21	21	-0.63	97.08
per 1 associate professor students	42	45	53	49	43	1.58	103.78

Table 1 illustrates the dynamics of key indicators of educational activity of three private higher education institutions of Ukraine during 2019–2023, and on its basis, it is possible to trace both common trends and differences in the development

of each of them. Poltava University of Economics and Trade experienced a significant reduction in the student contingent by almost a quarter, which was accompanied by a decrease in the number of scientific and pedagogical employees. Indicators for professors and associate professors also decreased, which indicates a decrease in personnel potential. However, a positive sign is the significant increase in the share of teachers who have undergone advanced training - almost doubled, which indicates an attempt to compensate for personnel losses by improving the quality of personnel. At the same time, the number of defended dissertations, especially for the degree of Doctor of Philosophy, has sharply decreased, which may indicate a decrease in scientific activity. Zhytomyr Institute of Economics and Humanities demonstrates stable and even moderate growth in almost all indicators. The number of students is gradually increasing, and the number of teachers is also increasing, although scientific activity (thesis defence) tends to decrease. The level of advanced training is improving most clearly - both in absolute numbers and in percentage terms. This indicates institutional development and the desire to maintain the quality of educational services, even despite a certain decrease in the number of newly defended scientific degrees. Vinnytsia University of Finance and Economics demonstrates a fairly stable situation with the number of students, which has increased slightly. At the same time, the number of scientific and pedagogical employees has decreased, although the number of professors has even increased. The indicator of associate professors has remained at the level of 2019. Interestingly, despite the reduction in employees, the workload per teacher has remained practically stable. Regarding scientific activity - doctoral dissertation defences remain at the level, but with PhDs - there is a decline. In the field of advanced training, the indicators remain almost unchanged, which indicates some stability, but without noticeable development. In general, it is clear that the educational sphere in the private sector is experiencing heterogeneous processes. Poltava University of Economics and Trade is experiencing the greatest load and challenges - perhaps due to external circumstances or a decrease in demand. Zhytomyr Institute of Economics and Humanities of the Open International University of Human Development "Ukraine" looks the most stable and is gradually strengthening its position. Vinnytsia University of Finance and Economics demonstrates moderate stability with certain internal fluctuations that do not have a critical impact on the overall course of the institution.

Next, we will follow the dynamics of financial costs for the maintenance of the studied private institutions of higher education, general costs and costs by items, including the implementation of marketing strategy and smart financial policy (Table 2).

Table 2. Dynamics of financial expenses of higher education institutions, 2019-2023. *(Source: summarized by the authors based on official data from the higher education institutions analyzed)*

Indicators/ Years	2019	2020	2021	2022	2023	On average for 2019-2023, UAH thousand	Absolute deviation 2023 from 2019, +,-	Relative deviation 2023 from 2019, %
Expenses for the maintenance of Ukoopspilka Poltava University of Economics and Trade, UAH thousand								
Total	**119896.22**	**101446.53**	**110278.62**	**83680.45**	**90943.05**	**101248.97**	**-28953.17**	**75.85**
of which:								
Expenses for social development of the university	350.00	167.68	470.58	444.22	50.72	296.64	-299.28	14.49
Educational expenses	8493.17	6798.68	8291.11	6154.29	7813.93	7510.23	-679.25	92.00
Purchase of fixed assets, intangible assets, replenishment of the library fund, major repairs	2450.72	23550.50	1244.13	1498.75	1760.62	6100.94	-690.09	71.84
% of the budget for the maintenance of the higher education institution	87.20	86.40	88.30	89.40	86.30	87.52	-0.90	98.97
Share of costs for maintaining a higher education institution in hall expenses								
Expenses for social development of the university	0.29	0.14	0.39	0.37	0.04	-0.25	X	X
Educational expenses	7.08	5.67	6.92	5.13	6.52	-0.57	X	X
Purchase of fixed assets, intangible assets, replenishment of the library fund, major repairs	2.04	19.64	1.04	1.25	1.47	-0.58	X	X
Share of expenses for:								
marketing strategy and smart financial policy	9.42	25.45	8.35	6.75	8.03	11.60	X	X

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DOI: 10.55643/fcaptp.3.62.2025.4813

Table 2. Continued.

Maintenance costs of the Zhytomyr Institute of Economics and Humanities of the Open International University of Human Development "Ukraine", UAH thousand						**On average for 2019-2023, UAH thousand**	**Absolute deviation 2023 from 2019, +.-**	**Relative deviation 2023 from 2019, %**
Total	**4051.50**	**4061.90**	**4154.20**	**4667.30**	**5705.00**	**4527.98**	**1653.50**	**140.81**
of which:								
Expenses for social development of the university	608.90	742.20	675.50	642.13	675.43	668.83	66.53	110.93
Educational expenses	28.00	24.00	19.50	20.00	24.00	23.10	-4.00	85.71
Purchase of fixed assets, intangible assets, replenishment of the library fund, major repairs	21.00	15.00	20.00	10.00	60.00	25.20	39.00	285.71
% of the budget for the maintenance of the higher education institution	85.34	86.10	86.86	87.62	88.38	86.86	3.04	103.56
Share of costs for maintaining a higher education institution in hall expenses								
Expenses for social development of the university	15.03	18.32	16.67	15.85	16.67	1.64	X	X
Educational expenses	0.69	0.59	0.48	0.49	0.59	-0.10	X	X
Purchase of fixed assets, intangible assets, replenishment of the library fund, major repairs	0.52	0.37	0.49	0.25	1.48	0.96	X	X
Share of expenses for:								
marketing strategy and smart financial policy	16.24	19.28	17.65	16.59	18.74	17.70	X	X
Maintenance costs of Vinnytsia University of Finance and Economics, UAH thousand						**On average for 2019-2023, UAH thousand**	**Absolute deviation 2023 from 2019, +.-**	**Relative deviation 2023 from 2019, %**
Total	**89922.16**	**76084.89**	**82708.96**	**62760.34**	**68207.29**	**75936.73**	**-21714.88**	**75.85**
of which:								
Expenses for social development of the university	262.50	125.76	352.93	333.17	38.04	222.48	-224.46	14.49
Educational expenses	6369.88	5099.01	6218.33	4615.72	5860.44	5632.68	-509.44	92.00
Purchase of fixed assets, intangible assets, replenishment of the library fund, major repairs	1838.04	17662.87	933.10	1124.06	1320.47	4575.71	-517.57	71.84
% of the budget for the maintenance of the higher education institution	82.84	82.08	83.89	84.93	81.99	83.14	-0.86	98.97
Share of costs for maintaining a higher education institution in hall expenses								
Expenses for social development of the university	0.79	0.64	0.89	0.87	0.54	-0.25	X	X
Educational expenses	7.58	6.17	7.42	5.63	7.02	-0.57	X	X
Purchase of fixed assets, intangible assets, replenishment of the library fund, major repairs	2.54	20.14	1.54	1.75	1.97	-0.58	X	X
Share of expenses for:								
marketing strategy and smart financial policy	10.92	26.95	9.85	8.25	9.53	13.10	X	X

The presented data reflect significant transformations in the structure and volume of financial expenditures of Ukrainian higher education institutions, driven by both external challenges and internal adaptation processes. The indicators for Poltava University of Economics and Trade show a general reduction in total expenses by 24.1% over five years, with particularly sharp declines in social development expenditures, which amounted to only 14.49% of the 2019 level. This suggests a shift in priority towards basic operational needs and reduced investment in intangible asset development. Comparable trends are observed at Vinnytsia University of Finance and Economics, which also recorded a 24.15% decrease in total funding in 2023 compared to 2019. However, the most striking data concerns the expenses for purchasing fixed

assets, which demonstrate significant decline and instability, posing risks of technological lag and deterioration in the quality of educational services.

In contrast, the situation at Zhytomyr Institute of Economics and Humanities is exceptional, as total expenses increased by 40.81%, and expenditures on material and technical support grew by 2.85 times. This indicates a different financial strategy within a smaller educational institution, potentially oriented toward infrastructure modernization and preservation of the social component.

The percentage of expenditures allocated to marketing strategies and smart financial policies remains stable at around 8–10% in Poltava and Vinnytsia, and slightly higher in Zhytomyr. This shows continued attention to the promotion of educational services even under strict budget constraints. However, the overall trend indicates that the financial strategy of most institutions remains reactive, focused more on sustaining viability rather than pursuing innovative breakthroughs.

In the context of the study of financial costs of higher education institutions in Ukraine, the content of the expense item related to marketing strategy and "smart" financial policy attracts special attention. In the three analyzed HEIs, a common tendency is observed to maintain or only slightly correct the specific weight of these costs in the structure of the general budget even in conditions of limited resources. The Poltava University of Economics and Trade demonstrates consistency in financing activities related to positioning on the market of educational services, communication with stakeholders and the introduction of elements of financial transparency, which allows for stabilizing its own presence in a competitive environment. A similar model can be observed at Vinnytsia University of Finance and Economics, where expenses for marketing and financial policy retain their weight despite the general budget reduction. This indicates a strategic vision of the management, focused on the long-term maintenance of educational attractiveness and trust in the HEI brand. In contrast, the Zhytomyr Institute of Economics and Humanities demonstrates a tendency to gradually increase the share of such expenses, which may indicate an intensive stage of marketing development and the simultaneous strengthening of management functions through financial optimization and transparency. All three HEIs demonstrate a desire to maintain dialogue with the target audience and support adaptive management behaviour through investments in image and analytical tools.

Next, we turn to economic and mathematical processing. For analysis, modelling and forecasting of innovative personnel management of entrepreneurial educational institutions in the marketing strategy and smart financial policy of the three specified private educational institutions, we select the data presented above: the share of scientific and pedagogical and research workers who have undergone advanced training in the total number of scientific and pedagogical workers, the share of expenses for marketing strategy and smart financial policy, as factors of influence on the result of educational activity - the number of students over the last five years.

For further calculation and reduction of production models to a mathematical form, we denote the factors and the indicator by variables, where:

- X_0 - fictitious factor;
- X_1 - the share of scientific and pedagogical and research workers who have undergone advanced training in the total number of scientific and pedagogical workers, %;
- X_2 - the share of expenses for marketing strategy and smart financial policy, %;
- Y - the number of students, persons.

Next, we calculate the mathematical matrix and simulated production functions to determine the theoretical and forecasted results of the specified private higher education institutions - the number of students. As a result of the calculations, multiple linear and nonlinear production regressions have the form:

Poltava University of Economics and Trade:

- multiple linear production regression Yr=-5890,82-30,17X1+7,54X2 multiple nonlinear power production regression $\hat{Y}i=2579,88X_1^{16,98}X_2^{0,46}$ multiple nonlinear exponential production regression $\hat{Y}i=5575,44*(-95532,40)^{X1}*14638,09^{X2}$
- multiple nonlinear exponential production regression $\hat{Y}i=-1,00E-35ex1+470E-09ex2+4384,33$
- multiple nonlinear semi-logarithmic production regression $LN\hat{Y}i=9,97-0,42Z1+0,02Z2$

Zhytomyr Institute of Economics and Humanities of the Open International University of Human Development "Ukraine":

- multiple linear production regression Yr=21129,39+32,04X1-1,97X2
- multiple nonlinear power production regression $\hat{Y}i=22413,57*X1-0,77*X2^{0,16}$
- multiple nonlinear exponential production regression $\hat{Y}i=21132,78*724213,01^{X1}*(-77113,30)^{X2}$

DOI: 10.55643/fcaptp.3.62.2025.4813

- multiple nonlinear exponential production regression Ŷi=-3,48E-07 ex1+1,40E-13ex2+21772,31
- multiple nonlinear semi-logarithmic production regression LNŶi=9,90+0,03Z1-0,004Z2

Vinnytsia University of Finance and Economics:

- multiple linear production regression Yr=617,64-0,38X1-0,34X2
- multiple nonlinear power production regression $\hat{Y}i=633,24* X1^{(-0,69)*} X2^{0,18}$
- multiple nonlinear exponential production regression Ŷi=642,71*(-9,89)X1*(-262,27)X2
- multiple nonlinear exponential production regression Ŷi=-1,19E-30ex1-3,58E-12ex2+663,15
- multiple nonlinear semi-logarithmic production regression LNŶi=6,33+0,04 Z1-0,01Z2

The next stage of forecasting the share of scientific and pedagogical and research workers who have undergone advanced training in the total number of scientific and pedagogical workers, the share of spending on marketing strategy and smart financial policy, as factors of influence and the result of educational activities - the number of students in private higher education institutions for the next 2026. Forecasting factor characteristics for the next period was carried out using a function for constructing a trend line, which accurately calculates factor characteristics in dynamics (Table 3).

Table 3. Forecasting factor characteristics of innovative personnel management of entrepreneurial educational institutions and the share of marketing strategy and smart financial policy costs, 2026.

Private higher education institution	Influencing factors			
	Share of scientific and pedagogical and research workers who have undergone advanced training in the total number of scientific and pedagogical workers, %, X1	Characteristic	Share of expenses on marketing strategy and smart financial policy, %, X2	Characteristic
Poltava University of Economics and Trade, 2026	88.79	growth on 6.08%	9.45	growth on 1.42%
Zhytomyr Institute of Economics and Humanities of the Open International University of Human Development "Ukraine", 2026	34.94	growth on 2.88%	18.86	growth on 0.12%
Vinnytsia University of Finance and Economics, 2026	67.68	growth on 0.35%	9.88	growth on 0.35%

Analyzing the forecast data of the factor characteristics of the subjects of the study, we observe their growth, which is a justified phenomenon in educational activities and innovative personnel management of entrepreneurial educational institutions and marketing strategy and smart financial policy and can have a positive effect.

Next, we forecast the effective indicator of the number of students of three private higher education institutions for the next 2026 using five production regressions of a linear and nonlinear nature: linear, power, exponential, exponential and semi-logarithmic (Table 4).

Table 4. Forecast of the number of students in private higher education institutions depending on spending on marketing strategy and smart financial policy, 2026.

Performance indicator	Number of students, persons
Poltava University of Economics and Trade, 2026	
multiple linear production regression Yr=-5890,82-30,17X1+7,54X2	4084
multiple nonlinear power production regression Ŷi=2579,88X116,98 X20,46	4380
multiple nonlinear exponential production regression Ŷi=5575,44*(-95532,40) X1* 14638,09X2	4217
multiple nonlinear exponential production regression Ŷi=-1,00E-35ex1+470E-09ex2+4384,33	4292
multiple nonlinear semi-logarithmic production regression LNŶi=9,97-0,42Z1+0,02Z2	4167

(continued on next page)

Table 4. Continued.

Performance indicator	Number of students, persons
Zhytomyr Institute of Economics and Humanities of the Open International University of Human Development "Ukraine", 2026	
multiple linear production regression Yr=21129,39+32,04X1-1,97X2	22712
multiple nonlinear power production regression Ŷi=22413,57* X1-0,77* X20,16	22414
multiple nonlinear exponential production regression Ŷi=21132,78*724213,01 X1*(-77113,30) X2	22528
multiple nonlinear exponential production regression Ŷi=-3,48E-07 ex1+1,40E-13ex2+21772,31	22837
multiple nonlinear semi-logarithmic production regression LNŶi=9,90+0,03Z1-0,004Z2	23077
Vinnytsia University of Finance and Economics, 2026	
multiple linear production regression Yr=617,64-0,38X1-0,34X2	810
multiple nonlinear power production regression Ŷi=633,24* X1(-0,69)* X20,18	801
multiple nonlinear exponential production regression Ŷi=642,71*(-9,89)X1*(-262,27)X2	725
multiple nonlinear exponential production regression Ŷi=-1,19E-30ex1-3,58E-12ex2+663,15	731
multiple nonlinear semi-logarithmic production regression LNŶi=6,33+0,04 Z1-0,01Z2	736

In the process of forecasting the number of students in private higher education institutions in Ukraine for 2026 depending on marketing costs and smart financial policy, the results obtained using different types of regressions demonstrate a certain variability, which allows us to assess the sensitivity of the model to the form of dependence between factors. In particular, in all three institutions, a different level of influence of management variables on the future demand for educational services is observed. For the Poltava University of Economics and Trade, the greatest value of the predicted number of students is given by the power model, which may indicate a certain nonlinearity of the influence of marketing costs and financial policy - with an increase in one of the factors, the result grows more intensively than in the linear model. At the same time, the lowest value was obtained by linear regression, which probably limits the model's ability to take into account complex relationships. At Zhytomyr Institute of Economics and Humanities, the forecast is the highest among all three institutions and quite stable between different models, which indicates a well-established policy and strong underlying dynamics. Importantly, the semi-logarithmic model gives the most optimistic result, indicating a possible multiplicative effect with a successful marketing strategy. This indicates the potential for growth through intensive investments in promotion and financial flexibility. For Vinnytsia University of Finance and Economics, none of the models demonstrates a significant increase in the number of students, even when taking into account different combinations of influences. On the contrary, some of them give lower results than the actual number of students in 2023. This may indicate either some stagnation or the need for structural changes in management policy - investing in marketing and modernizing financial approaches.

Overall, the results confirm that the form of the model significantly influences the conclusions regarding the future effectiveness of management decisions. Power and exponential models better reveal the potential for growth in the case of an effective strategy, while linear models show more cautious, more conservative estimates, which emphasizes the importance of the correct choice of a mathematical approach to forecasting in educational management. Also, it is possible to distinguish production functions that showed the best result of the number of students in private higher education institutions depending on the costs of marketing strategy and smart financial policy under the optimistic scenario (Table 5).

Table 5. Production functions that showed the best result of the number of students in private higher education institutions depending on the costs of marketing strategy and smart financial policy under the optimistic scenario.

Poltava University of Economics and Trade, people, 2026	
multiple nonlinear power production regression Ŷi=2579,88X116,98 X20,46	4380
Zhytomyr Institute of Economics and Humanities of the Open International University of Human Development "Ukraine", people, 2026	
multiple nonlinear semi-logarithmic production regression LNŶi=9,90+0,03Z1-0,004Z2	23077
Vinnytsia University of Finance and Economics, persons, 2026	
multiple linear production regression Yr=617,64-0,38X1-0,34X2	810

DOI: 10.55643/fcaptp.3.62.2025.4813

Thus, in the context of optimistic forecasting, it is clear that the success of growth depends not only on investments but also on the internal potential of the institution, which is best manifested through the appropriate mathematical model. The degree of nonlinearity in the function acts as a kind of indicator of the institution's readiness to scale educational services under the influence of strategic decisions. As a continuation of the study of the topic of innovative personnel management of entrepreneurial educational institutions in marketing strategy and smart financial policy, we are studying the performance evaluation indicators using the aggregate utility function or integral quality assessment for three private higher education institutions over the past five years. We understand that the selected indicators are not enough for a comprehensive study of the effectiveness of the educational entity, but the indicators of innovative personnel management and marketing strategy and smart financial policy, as the main components of the educational system, will allow us to study the effectiveness of the educational entity from this projection. In the course of additional calculations: dimensionless values of indicators for evaluating innovative activity and personnel management of entrepreneurial educational institutions in the marketing strategy and smart communication policy of private higher education institutions, indicators were calculated according to the partial function of aggregated utility or integral quality assessment and their characteristics (Table 6).

Table 6. Results of the function of integrated assessment of the quality of innovative activity and personnel management of entrepreneurial educational institutions in marketing strategy and smart financial policy, 2019-2023.

Indicators	2019	2020	2021	2022	2023
Results of the integrated quality assessment function of Poltava University of Economics and Trade					
Number of full-time scientific, pedagogical and research workers, persons	0.69	0.69	0.69	0.64	0.59
Passed advanced training, persons	0.61	0.61	0.65	0.69	0.69
Costs for marketing strategy and smart financial policy, UAH thousand	0.50	0.69	0.49	0.46	0.48
Number of students, persons	0.69	0.69	0.69	0.61	0.62
The function of integral assessment	**0.62**	**0.67**	**0.63**	**0.60**	**0.60**
Characteristics	satisfactorily	good	satisfactorily	satisfactorily	satisfactorily
Results of the integrated quality assessment function of the Zhytomyr Institute of Economics and Humanities of the Open International University of Human Development "Ukraine"					
Number of full-time scientific, pedagogical and research workers, persons	0.69	0.69	0.69	0.69	0.69
Passed advanced training, persons	0.53	0.57	0.58	0.65	0.69
Costs for marketing strategy and smart financial policy, UAH thousand	0.65	0.69	0.67	0.66	0.69
Number of students, persons	0.69	0.69	0.69	0.69	0.69
The function of integral assessment	**0.64**	**0.66**	**0.66**	**0.67**	**0.69**
Characteristics	good	good	good	good	good
Results of the integrated quality assessment function of Vinnytsia University of Finance and Economics					
Number of full-time scientific, pedagogical and research workers, persons	0.69	0.69	0.68	0.67	0.67
Passed advanced training, persons	0.69	0.66	0.65	0.64	0.67
Costs for marketing strategy and smart financial policy, UAH thousand	0.50	0.69	0.49	0.46	0.48
Number of students, persons	0.68	0.68	0.69	0.69	0.69
The function of integral assessment	**0.64**	**0.68**	**0.63**	**0.62**	**0.63**
Characteristics	good	good	satisfactorily	satisfactorily	satisfactorily

The results of the integral assessment function of the quality of innovation activity and personnel management in entrepreneurial educational institutions indicate a general trend towards stable, but uneven development. The calculations in Table 6 show that the effectiveness of management decisions in the field of personnel policy, advanced training and marketing costs has a different degree of implementation in each of the analyzed universities. The Poltava University of Economics and Trade demonstrates a slight decrease in the integral indicator over time, which is accompanied by a gradual decrease in the number of scientific and pedagogical employees and only a moderate increase in the advanced training

indicator. Marketing costs remain unstable, which may affect the overall dynamics. Overall, the assessment remains at the "satisfactory" level, and even despite a short rise in 2020, the university was unable to maintain improvement, which indicates the need for a more systematic approach to strategic management.

An example of consistent improvement can be traced at the Zhytomyr Institute. Here, the number of staff and students remains stable, and the level of advanced training and strategy spending is gradually increasing, which is reflected in the steady growth of the integral assessment function, which is strengthened every year, keeping the qualitative characteristic at the "good" level. This trend indicates the stability and predictability of management decisions, which are highly likely to have a positive effect in the long term. In the case of Vinnytsia University of Finance and Economics, the situation looks ambiguous. Initially, the indicators showed positive dynamics, but since 2021 there has been a gradual decrease in the integral assessment, which may be associated with fluctuations in marketing costs and a decline in the number of employees, which is not compensated even by maintaining high indicators of the student contingent. The characteristic from "good" moves to "satisfactory", which is a signal of the need to correct management decisions. In general, the analysis confirms that stability and consistency of investments in advanced training and strategic management have a direct impact on the quality of innovative activities of institutions. At the same time, even a high level of individual indicators does not guarantee success without their comprehensive combination and consistency in dynamics. It should be emphasized that further forecasting and comparison of the universal indicator of the aggregate utility function or integrated assessment of the quality of innovation activity and personnel management in the marketing strategy and smart communication policy of private higher education institutions for 2026 was carried out (Table 7).

Table 7. Forecasting indicators of evaluation of innovative activity and personnel management in marketing strategy and smart financial policy using the aggregate utility function or integral quality assessment of three private higher education institutions in Ukraine, 2019-2023, 2026.

Indicators	2019	2020	2021	2022	2023	2026
Results of the integrated quality assessment function of Poltava University of Economics and Trade						
Number of full-time scientific, pedagogical and research workers, persons	0.69	0.69	0.69	0.64	0.59	0.62
Passed advanced training, persons	0.59	0.58	0.63	0.66	0.67	0.69
Costs for marketing strategy and smart communication policy, UAH thousand	0.50	0.69	0.49	0.46	0.48	0.38
Number of students, persons	0.69	0.69	0.69	0.61	0.62	0.66
The function of integral assessment	**0.62**	**0.67**	**0.62**	**0.60**	**0.59**	**0.64**
Characteristics	satisfactorily	good	satisfactorily	satisfactorily	satisfactorily	good
Results of the integrated quality assessment function of the Zhytomyr Institute of Economics and Humanities of the Open International University of Human Development "Ukraine"						
Number of full-time scientific, pedagogical and research workers, persons	0.69	0.69	0.69	0.69	0.69	0.69
Passed advanced training, persons	0.49	0.52	0.53	0.58	0.62	0.69
Costs for marketing strategy and smart communication policy, UAH thousand	0.65	0.69	0.67	0.66	0.69	0.69
Number of students, persons	0.67	0.68	0.68	0.68	0.68	0.69
The function of integral assessment	**0.63**	**0.64**	**0.64**	**0.65**	**0.67**	**0.69**
Characteristics	satisfactorily	good	good	good	good	good
Results of the integrated quality assessment function of Vinnytsia University of Finance and Economics						
Number of full-time scientific, pedagogical and research workers, persons	0.69	0.68	0.67	0.67	0.66	0.69
Passed advanced training, persons	0.69	0.66	0.65	0.64	0.67	0.68
Costs for marketing strategy and smart communication policy, UAH thousand	0.50	0.69	0.49	0.46	0.48	0.49
Number of students, persons	0.63	0.63	0.64	0.63	0.64	0.69
The function of integral assessment	**0.63**	**0.67**	**0.61**	**0.60**	**0.61**	**0.64**
Characteristics	satisfactorily	good	satisfactorily	satisfactorily	satisfactorily	good

DOI: 10.55643/fcaptp.3.62.2025.4813

The forecast for 2026 reflects a moderate but noticeable improvement in the quality of innovation and personnel management in all three private educational institutions. Poltava University is experiencing a recovery after several years of decline: the integral indicator is increasing, which returns the institution to the positive characteristic of "good", which indicates the potential for growth if existing trends are maintained, even despite the reduction in investments in marketing. Zhytomyr Institute maintains stable dynamics and reaches the highest level among all three, confirming the success of its strategy - both in terms of personnel management and in the context of targeted use of resources. Its result demonstrates the most effective implementation of the relationship between investments, professional development and a stable contingent of students. Vinnytsia University also demonstrates a positive forecast: an increase in the score to the "good" level indicates the stabilization of internal processes, the preservation of personnel potential and partial activation of the professional growth of personnel. Even with small marketing costs, which remain almost unchanged, the projected quality of the educational model is improving.

In general, all three institutions are projected to demonstrate the ability to adapt to change, maintaining or restoring an acceptable level of efficiency in key management parameters.

To compare the results of private higher education institutions, we group them and present them graphically (Figure 1).

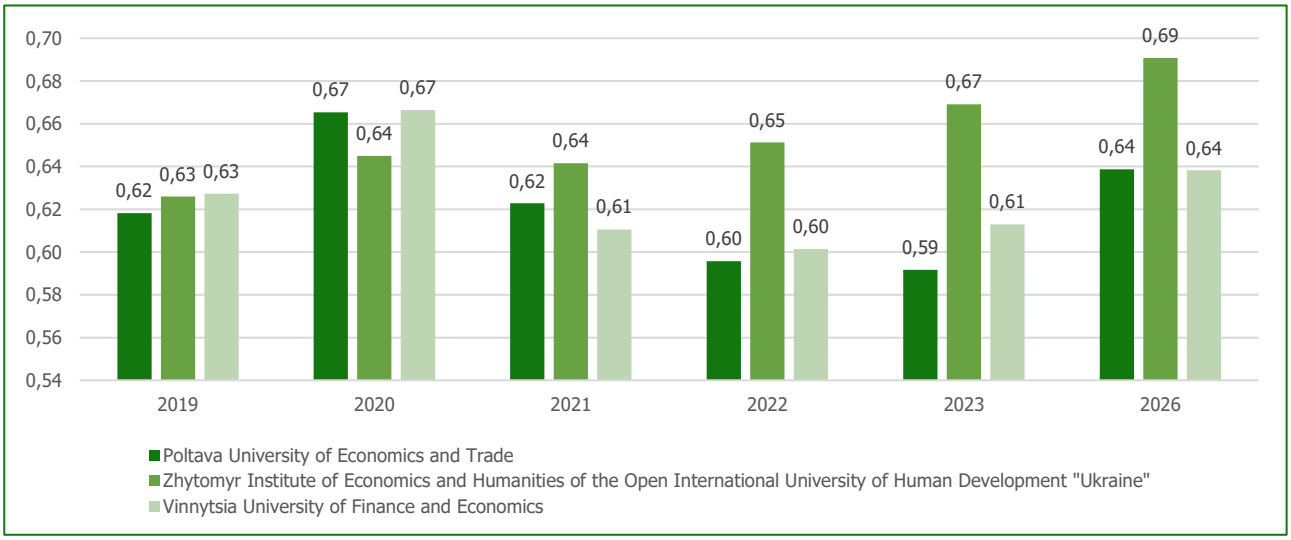

Figure 1. Indicators by partial aggregate utility function or integral assessment of the quality of assessment of innovative activity and personnel management in the marketing strategy and smart financial policy of three private higher education institutions of Ukraine, 2019-2023, 2026.

The forecast results of the integrated assessment of the quality of innovation activities and personnel management in private higher education institutions for 2026 indicate a gradual restoration and strengthening of the internal potential of institutions. Despite different starting positions and fluctuations in previous years, all three universities demonstrate a willingness to improve their management models. Positive dynamics in indicators of professional development, preservation or stabilization of the number of students, as well as adaptation to changes in conditions of financial constraints indicate that educational institutions are gradually forming more flexible and effective strategies. As a result, the qualitative assessment of institutional management according to the forecast for 2026 reflects a tendency to improve in all analyzed cases.

In the context of a comprehensive analysis of financial strategy and innovative personnel management, it is advisable to include indicators that reflect the external effectiveness of higher education institutions. One of these is the position in national and international rankings, which act as an indicator of academic reputation, quality of educational services, scientific achievements and ability to innovate. Poltava University of Economics and Trade, Vinnytsia University of Finance and Economics and Zhytomyr Institute of Economics and Humanities mostly do not occupy leading positions in national rankings, but demonstrate a gradual stabilization of their own position in the regional dimension due to targeted steps in the field of organizational modernization.

The publication activity of scientific and pedagogical staff is another strategic factor in increasing the status of an institution, which is directly correlated with the effectiveness of intellectual capital. In most cases, it is concentrated around professional Ukrainian publications, with some increase in the number of publications in foreign journals included in the

Scopus or Web of Science databases. At the same time, it should be noted that the activation of scientific productivity is often a consequence of internal motivational policies tied to career advancement and rating assessment of NPP.

Participation in international projects, in particular within the framework of the Erasmus+, Horizon Europe or Creative Europe programs, is not yet a widespread practice in the analyzed HEIs, however, isolated examples of successful grant initiatives indicate the potential for the development of internationalization. The implementation of an international component in the activities of HEIs acts not only as a mechanism for attracting funding but also as a platform for the transfer of educational technologies, increasing the mobility of students and teachers, as well as expanding the network of academic partnerships.

Thus, the integration of external performance indicators — such as ratings, scientific publication rate and international project activity — into the overall strategy of personnel and financial management allows entrepreneurial educational institutions to build a more holistic development model focused on sustainability, innovation and global openness.

DISCUSSION

Most of the scientific sources we analyzed have high theoretical or applied value in certain areas: innovation, finance, and education, however, scientists often consider these areas in isolation. The topic of innovative personnel management in entrepreneurial higher education institutions in connection with marketing and finance is still insufficiently represented in scientific discourse, especially as an integrated system. This is what makes it promising and scientifically valuable for further research. As an example, Hiltrop (1996) formulates the connection between HRM and performance, the study is outdated and does not cover modern digital management tools, and does not take into account smart components of financial policy and educational and marketing mechanisms in the context of entrepreneurial transformations. Massa and Testa (2008) despite an important discussion of the gap between scientific and practical approaches to innovation, the authors do not focus on the specifics of the educational environment and also leave out of consideration the issue of personnel management in entrepreneurial structures of education.

The scientific article Macke and Genari (2019) thoroughly analyzes sustainable HRM but does not integrate it into the financial and marketing strategies of organizations. In addition, there is no specification for the education sector, where these aspects have different dynamics and requirements for personnel. Despite the in-depth study of institutions supporting innovation by George and Prabhu (2003), the scientific article almost does not touch on aspects of human resource management, especially in the context of higher education institutions or educational entrepreneurship, which creates a gap in the complexity of the topic.

Mittal et al. (2018) offer an overview of Industry 4.0 maturity models, while there is virtually no analysis of the impact of digital transformation on HR processes in educational institutions. There is also a lack of logical connection with marketing or financial aspects. The scientific work of Azizi et al. (2021) is relevant in the context of the pandemic but has limited geographical and methodological depth. It generalizes management strategies without providing clear tools or models for implementation in smart financial policies, in particular in education.

The disadvantages of the study of Carayannis et al. (2006) are that the work almost does not consider the educational context or the marketing and financial integration of innovations into personnel. Although the author Mizrak (2023) effectively combines personnel management, innovation and education, the study is excessively technocratic, focusing on quantitative methods, but does not reveal the depth of cultural and organizational aspects of management in educational institutions.

The scientific article Kubitskyi et al. (2023) is relevant and thematically close, but mainly focuses on the structural management of higher education institutions, almost without touching on the subtleties of personal management, motivational policy or financial analytics in personnel systems.

An interesting study by Zhyvko et al. (2022) is, however, abstract in terms of real application in personnel systems or in the educational environment. It lacks a practical component regarding personnel management in smart financial structures of higher education institutions.

Most studies consider innovative personnel management, financial strategies and marketing of educational services separately, which does not allow for creating a holistic management model in the conditions of a modern entrepreneurial educational environment. Despite the wide attention to the digitalization of finance and Industry 4.0, the works lack specific examples or models of implementing smart solutions in the personnel management systems of educational institutions. Some theoretical models, although they have historical value, do not take into account modern challenges (such as post-

DOI: 10.55643/fcaptp.3.62.2025.4813

pandemic transformation, digitalization, and changes in personnel behaviour) and therefore need to be reconsidered. There is a need to form an interdisciplinary methodology that will allow building new approaches to personnel management in the dynamic, digital and market-oriented environment of modern education.

CONCLUSIONS

In general, the results of the study indicate the important role of innovation, marketing strategy and smart financial policy in ensuring the sustainable development of entrepreneurial higher education institutions in Ukraine. Using the example of three universities, not only the dynamics of the main educational indicators were analyzed, but also the future state was predicted using various economic and mathematical models, in particular linear and nonlinear regressions.

The results obtained confirm that strategic management decisions, in particular investments in staff training and effective marketing policy, have a direct impact on the number of students, and therefore on the competitiveness of institutions. The integrated quality assessment was particularly indicative, which allowed for a comprehensive assessment of the level of management in each higher education institution. The forecast for 2026 indicates a positive trend towards improving the quality of educational management, even in conditions of limited resources.

Differences between institutions emphasize the importance of an individual approach to the formation of management strategies: sustainable development, consistent investment in human capital and flexibility in the use of resources allow for achieving better results in the medium and long term. Thus, the combination of quantitative analysis with a qualitative assessment of management parameters makes it possible to more accurately predict the prospects for the development of private higher education in Ukraine in a dynamic educational environment. Prospects for research on innovative personnel management in entrepreneurial higher education institutions are aimed at further improving strategic planning and assessing the effectiveness of management practices. An important direction is the application of the latest analysis methods to predict the development of institutions and assess their ability to innovate. It is also important to study the impact of external factors, such as economic and social changes, on management decisions. In the future, research on the role of digital technologies and automation in personnel management will be relevant. In addition, the development of a sustainable development strategy will be important, which will be able to provide universities with long-term stability and social responsibility. All these areas will contribute to increasing the competitiveness of higher education institutions and adapting to changes in the global context.

ADDITIONAL INFORMATION

AUTHOR CONTRIBUTIONS

All Authors have contributed equally.

FUNDING

The Authors received no funding for this research.

CONFLICT OF INTEREST

The Authors declare that there is no conflict of interest.

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ІННОВАЦІЙНЕ УПРАВЛІННЯ ПЕРСОНАЛОМ ПІДПРИЄМНИЦЬКИХ ЗАКЛАДІВ ОСВІТИ В МАРКЕТИНГОВІЙ СТРАТЕГІЇ Й SMART-ФІНАНСОВІЙ ПОЛІТИЦІ

У статті розкрито теоретичні засади та практичні аспекти інноваційного управління персоналом у підприємницьких закладах вищої освіти України з урахуванням ролі маркетингової стратегії та smart-фінансової політики. Дослідження ґрунтується на розумінні того, що в сучасних умовах трансформації освітнього простору ефективність функціонування підприємницьких закладів вищої освіти значною мірою залежить від здатності закладів гнучко реагувати на зовнішні виклики, інвестувати в людський капітал і формувати стійкі конкурентні переваги через внутрішнє оновлення організаційної моделі управління. Особливу увагу приділено аналізові кадрового потенціалу закладів, динаміці підвищення кваліфікації працівників, а також впливу обсягів витрат на маркетингову стратегію й smart-комунікаційну політику на кількісні показники студентського контингенту. У результаті дослідження виявлено, що найстійкіший розвиток демонструє заклад, у якому спостерігається системне поєднання трьох ключових елементів:

професійного зростання персоналу, стратегічної маркетингової активності та оптимального фінансового планування. Навпаки, відсутність цілісного підходу призводить до зниження результативності навіть за високих витрат або наявності кадрового потенціалу. Отож, досягнення успішності підприємницьких закладів вищої освіти в сучасних умовах потребує інтеграції управлінських інструментів у єдину інноваційну модель розвитку. У статті обґрунтовано практичні рекомендації щодо вдосконалення механізмів управління персоналом підприємницьких закладів вищої освіти з орієнтацією на посилення ролі цифрових рішень, формування ціннісних пропозицій для абітурієнтів, підвищення прозорості фінансування та довгострокове планування освітніх процесів.

Ключові слова: інноваційне управління персоналом, підприємницький заклад вищої освіти, маркетингова стратегія, smart-фінансова політика, кадровий потенціал

JEL Класифікація: I23, M12, G41, L26

DOI: 10.55643/fcaptp.3.62.2025.4813