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MANAGEMENT OF INNOVATIVE DEVELOPMENT OF A
PHARMACEUTICAL ORGANIZATION»**

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АНОТАЦІЯ

Дослідження присвячене розробці механізму стратегічного управління інноваційним розвитком фармацевтичної організації. Досліджено концептуальні основи формування інноваційної стратегії та управління знаннями; проаналізовано ефективність інноваційної стратегії фармацевтичної організації. Практична частина містить результати діагностики інноваційного розвитку та оцінку ефективності використання інтелектуальних ресурсів у аптечній мережі «Аптека 911». Обсяг основної частини становить 42 сторінки; результати ілюстровано 10 таблицями та 15 рисунками; список використаних джерел налічує 30 найменувань.

Ключові слова: розвиток, механізм, стратегічне управління, інноваційний розвиток, фармацевтична організація, аптечна мережа

ABSTRACT

This research is centered on the conceptualization of a framework for the strategic governance of innovation-driven evolution within a pharmaceutical enterprise. The conceptual foundations of the formation of an innovative strategy and knowledge management are investigated; the effectiveness of the innovative strategy of a pharmaceutical organization is analyzed. The practical part contains the results of diagnostics of innovative development and assessment of the effectiveness of the use of intellectual resources in the pharmacy chain "Apteka 911". The volume of the main part is 42 pages; the results are illustrated by 10 tables and 15 figures; the list of sources used includes 30 items.

Keywords: development, mechanism, strategic management, innovative development, pharmaceutical organization, pharmacy chain

CONTENT

	p.
Introduction.....	4
Chapter 1. THEORETICAL AND METHODOLOGICAL BASIS OF FORMING INNOVATION STRATEGY AND KNOWLEDGE MANAGEMENT.....	9
1.1. Types, structure and mechanisms of implementing an innovation strategy in the pharmaceutical industry	9
1.2. Conceptual foundations of knowledge management.....	12
1.3. The relationship between knowledge management and the effectiveness of innovation strategy implementation	15
Conclusions to Chapter 1	17
Chapter 2. ASSESSING THE PERFORMANCE OF A PHARMACEUTICAL COMPANY'S MODERNIZATION ROADMAP	18
2.1. Structural and financial profile along with the long-term objectives of the retail pharmacy group	18
2.2. An audit of the current innovation policy and core transformative operations within the "Apteka 9-1-1" group	20
2.3. Analysis of the current knowledge management system	23
2.4. Identifying key problems in innovation management related to inefficient use of knowledge	28
Conclusions to Chapter 2	30
Chapter 3. IMPROVEMENT OF THE MECHANISM FOR MANAGEMENT OF THE EFFICIENCY OF THE INNOVATION STRATEGY BASED ON KNOWLEDGE MANAGEMENT.....	32
3.1. Development of an integrated system of indicators for evaluating the efficacy of an innovation strategy taking into account knowledge management factors ...	32
3.2. Assessment of the economic and social effectiveness of the proposed measures for network "Apteka 911"	38
Conclusions to Chapter 3	41
CONCLUSIONS	42
LIST OF SOURCES USED	43
APPENDICES.....	47

INTRODUCTION

Relevance of the topic is determined by a combination of macroeconomic, industry and microeconomic factors that determine the critical need for a transition from extensive to intensive models of innovative development in the pharmaceutical sector. The pharma sector, being a pinnacle of intellectual-heavy and volatile business, functions amidst a surging deluge of scholarly evidence, intensifying oversight from authorities, and unparalleled international rivalry. Under such circumstances, conventional methodologies for overseeing advancements, centered exclusively on capital injections into R&D, exhibit declining incremental yields. This is demonstrated by Broom's Law, which observes that the expenditure required to engineer a novel medication doubles approximately every decennium [5].

The pivotal significance of a transformative blueprint for a healthcare corporation resides in its capacity to secure enduring market superiority and robust commercial standing by broadening the merchandise array and launching proprietary pharmaceuticals. Nevertheless, possessing a vision does not ensure flawless execution. The central hurdle is the dearth of a rigorous, unified framework for gauging the performance of this roadmap one that evaluates beyond numerical yields to include subjective metrics like organizational resilience and flexibility. Consequently, intellectual asset administration emerges as a mission-critical necessity [22].

Cognitive governance within pharmacology serves as an overarching architecture that unifies every phase of utility generation: from formulating theoretical conjectures and conducting human trials to commercialization tactics for product rollout. A proficient information-sharing ecosystem guarantees: the fiscal valuation of internal expertise and external insights (including learnings from aborted trials); the mitigation of redundant investigative efforts to accelerate the launch window; and the fostering of interdisciplinary synergy among laboratory, medical, and sales departments. Thus, expertise optimization functions as a driver

for boosting the output of inventive workflows and diminishing their unpredictability [7].

The scientific relevance of the study lies in the need to develop a holistic methodological toolkit that would combine: a framework for assessing the strategic effectiveness of innovations; and a mechanism for correcting this effectiveness through targeted management of the processes of generation, transfer and use of knowledge. Existing scientific works often consider innovation strategy and KM separately, while the critical dependence of the ultimate effectiveness of innovations on the quality of intellectual assets remains insufficiently formalized and operationalized. It is necessary to create a model that will allow quantitatively assessing the impact of certain KM initiatives on key indicators of innovation success [24]. The practical relevance of the study is due to the fact that the proposed methodological recommendations and the assessment model can become the basis for the formation of a corporate decision-making support system in pharmaceutical organizations. This will allow management to: accurately identify KM barriers that inhibit the innovation strategy; rationally distribute resources between different KM tools; form a balanced portfolio of R&D projects considering the availability of the necessary intellectual competencies. In the context of post-pandemic recovery and the need to strengthen pharmaceutical safety at the national level, increasing the efficiency of domestic pharmaceutical companies through strategic knowledge management is a strategic priority. Therefore, the development of theoretical and applied aspects of assessing and managing the effectiveness of an innovation strategy based on KM is a timely and scientifically sound task that has high theoretical and practical significance [9].

The complexities of governing the performance of a pharmaceutical entity's innovation roadmap have been extensively examined within the rigorous scholarly contributions of numerous researchers. However, the complex nature of the chosen topic requires an in-depth synthesis. An examination of scholarly literature reveals that the challenge of holistic governance regarding the efficacy of a pharmaceutical entity's innovation roadmap, anchored in goal-oriented expertise administration,

remains insufficiently explored. In particular, existing methods do not provide a valid tool for quantitatively assessing the impact of quality indicators and knowledge transfer on key parameters of innovation success (the speed and probability of passing clinical phases). This emphasizes the need for further scientific research and development of a methodological framework that would combine strategic, managerial and knowledge aspects into a single functional system [28].

The primary **objective** of this scholarly inquiry is to architect a framework for the strategic governance of a pharmaceutical enterprise's transformative evolution. To fulfill this overarching aim, the following research **tasks** must be addressed:

- to determine the economic essence, features, types, structure and mechanisms for implementing an innovation strategy across the pharma landscape;
- to analyze the conceptual foundations of knowledge management, including models, processes, and the role in ensuring the innovative development of an organization;
- to investigate and substantiate the theoretical and practical relationship between the effectiveness of implementing an innovation strategy and the level of maturity of the knowledge management system of a pharmaceutical organization;
- to determine the organizational and economic characteristics and analyze the strategic goals of the pharmacy chain as the object of research;
- analyze and diagnose the existing innovation strategy and key innovation processes used in the activities of the chain;
- to investigate and evaluate the current knowledge management system in the organization, in particular the processes of identifying, storing, distributing and using intellectual assets;
- to assess the current effectiveness of the innovation strategy and identify key problems and structural constraints in innovation management related to the ineffective use of knowledge;
- to develop and substantiate an integrated system of indicators (KPIs) for assessing the effectiveness of the innovation strategy, with mandatory consideration of knowledge management factors;

- to substantiate and develop a holistic model for managing the effectiveness of the innovation strategy by optimizing knowledge management processes;
- to appraise the socio-economic impact and efficacy of the envisioned initiatives for the retail network, while delineating actionable protocols for their systematic integration into the organizational workflow.

The object of this inquiry encompasses the governance of innovation-led policies and the assurance of their operational efficacy within pharmaceutical sector participants, specifically operationalized through the case of the 'Apteka 911' retail network.

The subject of this inquiry encompasses the theoretical-methodological frameworks and pragmatic expertise-administration instruments utilized to evaluate, calibrate, and amplify the strategic efficacy of transformative workflows within the 'Apteka 911' retail network.

Methods were used to achieve the set goal and solve the identified tasks: dialectical and systemic approaches – for a comprehensive study of the innovation strategy as a complex dynamic system, as well as to establish functional relationships between knowledge management and the effectiveness of innovation activity; theoretical generalization and comparative analysis – used in the study of the conceptual foundations of innovation strategy, knowledge management and the analysis of foreign and domestic experience in implementing ultrasound systems in pharmacy; economic and statistical analysis – used to assess the financial and economic indicators of the network, as well as to quantitatively measure the effectiveness of innovation processes and identify trends; the method of structural and logical modeling – used to substantiate and develop an integrated model of managing the effectiveness of the innovation strategy based on optimizing the processes of generation, transfer and use of knowledge; the method of expert assessments – used to verify the system of key performance indicators and assess the social effectiveness of the proposed knowledge management measures;

Graphical and tabular methods are used to visually present the results of the analysis, the dynamics of indicators, and illustrate the proposed models and algorithms.

Practical significance of the obtained results for the pharmacy chain is to provide specific tools and forecasting estimates that allow achieving strategic efficiency and financial growth. The main result is the improvement of the mechanism for managing the effectiveness of the innovation strategy based on knowledge management. The developed three-level integrated model of KM-innovations creates a closed cycle: from collecting tacit knowledge to converting it into strategic decisions and scalable standards. At the operational level, a 'Post-Failure Analytical Protocol' is systematically utilized; this initiative effectively dismantles the psychological barrier of error-aversion and mitigates the systemic deficit of insufficient institutional learning from setbacks. A key measure with high practical value is the implementation of a centralized AI-system for inventory management and demand forecasting.

Approbation of research results and publication. The core components of this study were presented and discussed at the XII International Scientific and Practical Internet-Conference titled “Management and Marketing in the Modern Economy, Science, Education, and Practice.” The conceptual tenets of the work are further detailed in the following publication: Bondarieva I., Fennane Hicham. Conceptualizing of a mechanism for strategic management of innovative development of a pharmaceutical organization. Management and marketing in the modern economy, science, education and practice: materials of XII scientific and practical internet-conference with international participation. March 19, 2026 / ed. board. : O.V. Litvinova. Kharkiv. NUPh, pp. 25-30.

Structure and scope of the qualification work. The study comprises a formal introduction, a review of theoretical foundations, an experimental analysis, and a concluding summary, followed by a list of cited sources and supporting materials. The manuscript spans 42 pages and features 15 figures alongside 10 tables. The investigative framework is supported by the analysis of 30 academic publications

CHAPTER 1

THEORETICAL AND METHODOLOGICAL BASIS OF FORMING INNOVATION STRATEGY AND KNOWLEDGE MANAGEMENT

1.1. Types, structure and mechanisms of implementing an innovation strategy in the pharmaceutical industry

Innovation strategy (IS) in the pharmaceutical industry is not just a functional strategy, but a strategic paradigm that integrates development goals, organizational culture and resource allocation to achieve sustainable competitive advantage. The fundamental feature of pharmaceuticals, which is characterized by high knowledge intensity, long R&D cycles (up to 10–15 years) and a strict regulatory environment, determines a specific approach to the classification and implementation of IS. The definition of the concept of "Policy" by various scientists is presented in table 1.1 [17].

Table 1.1

Definition of the concept of "Policy" by various scholars

Scientist	Definition of the concept of "strategy"
F. Hedouri	A detailed plan that comprehensively reveals the content of the goal is designed to ensure the achievement of the company's goals and the implementation of its mission.
M. Porter	By reacting to external opportunities, as well as the company's internal strengths and weaknesses that arise when implementing ideas.
A. Chandler	A method of establishing a company's long-term goals, programs, actions, and resource allocation directions.
Ershova R. A.	Ability to develop effective means of using production, personnel and financial potential to increase demand for products.
Verbytsky I. S.	Strengthening the role of economic regions to improve the workforce for the economic and social development of the company in the international market.
Pichurin I. I.	The real ability of a company, given its capabilities, to manufacture, design, and sell goods or services that are more attractive to consumers in terms of price and quality characteristics than competitors' goods.

Source: [6]

The classification of these strategies is usually based on two key criteria: the degree of novelty of the innovation and the pace of the company's response to technological changes. In this context, proactive strategies are distinguished, which include a technology leadership strategy aimed at creating fundamentally new drugs and establishing a patent monopoly, and a niche strategy focused on innovations in narrow therapeutic areas, which is typical for biotechnology divisions. In parallel, there are reactive strategies, such as an imitation strategy that minimizes R&D risks by copying successful developments (e.g., generics), and a protection/dependence strategy focused on minor modifications to extend the product life cycle. Collaboration strategies (partnership) are also critically important, in particular an integration strategy that involves the active involvement of external knowledge and competencies through alliances to reduce "Market-entry timeline" and share risks [22].

Process of innovation processes are presented in Fig. 1.1. [19].

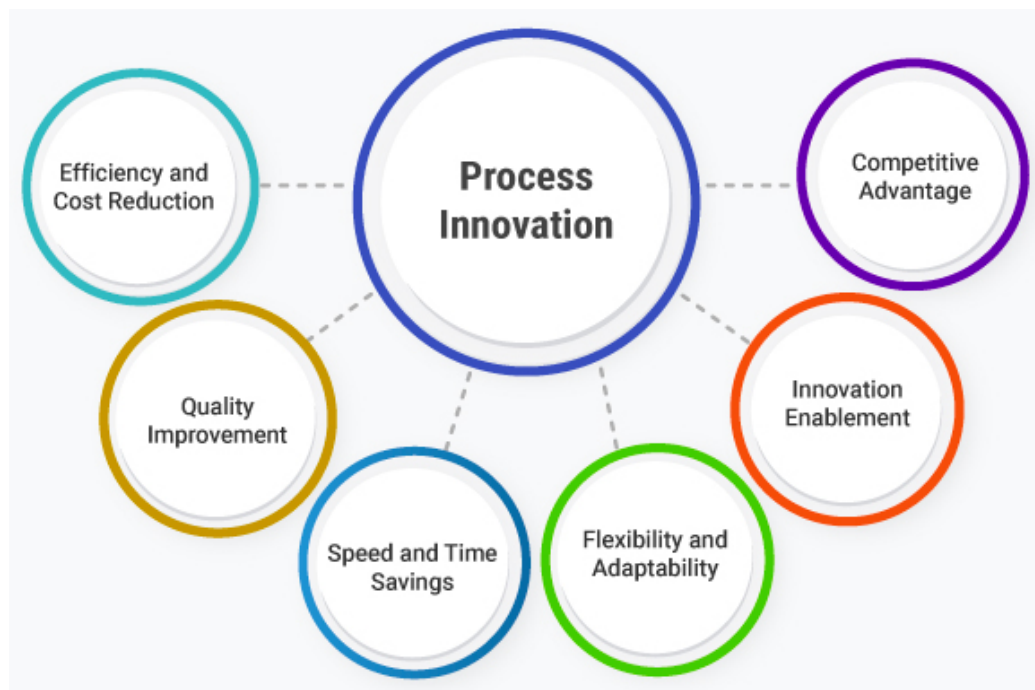


Fig. 1.1. Process of innovation

Structurally, the innovation strategy should be designed as a hierarchical system that is functionally divided into three interdependent blocks. The first, strategic block, defines innovation priorities and focus (product, technological,

organizational innovations). The second, resource block, covers financial investments, material and technical base and, which is key for research, intellectual capital (competences, patents and know-how). The third, management block, outlines implementation mechanisms, including organizational structure, motivation system and, especially, knowledge management system, which ensures the continuity of the innovation cycle [6].

Factors that significantly influence the formation of the flexibility of the innovation strategy are presented and summarized in Fig. 1.2. [20].

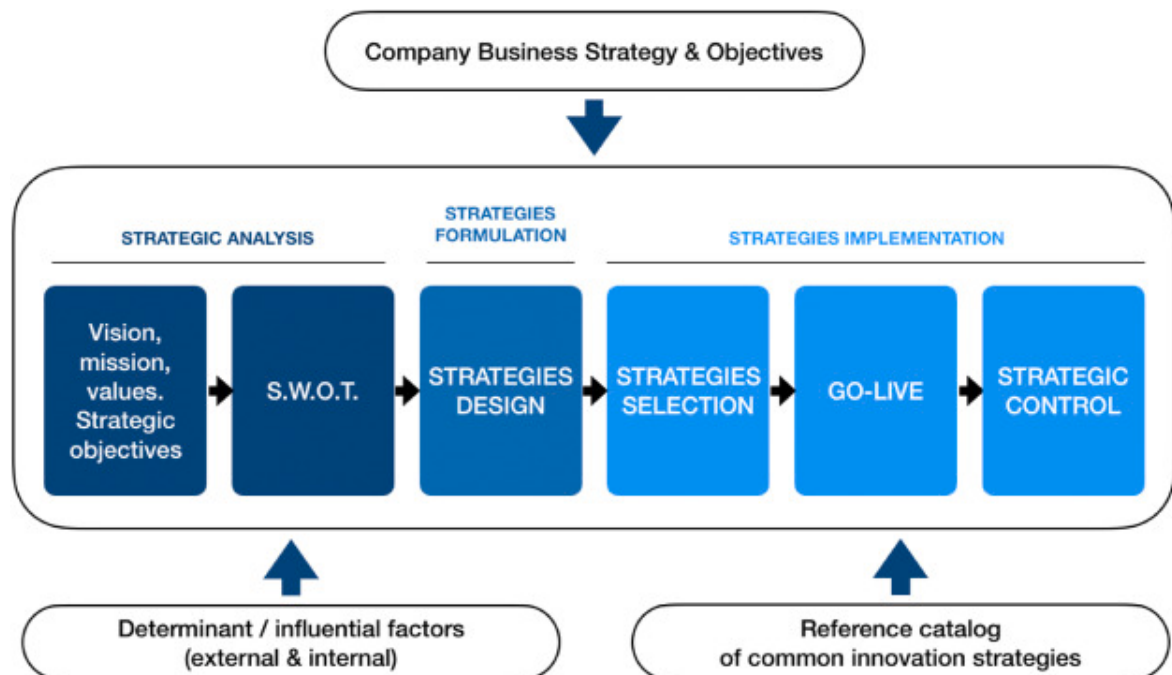


Fig. 1.2. Factors that significantly influence the formation of the flexibility of the innovation strategy of a pharmaceutical organization

Effective implementation of IS depends on the interaction of three main mechanisms. The organizational mechanism involves the creation of flexible, cross-functional teams and the formation of an innovation culture that supports risk and learning from failures. The economic mechanism concerns financial planning and a system for stimulating innovation activity. The intellectual mechanism is central to this study, as it involves the creation of an infrastructure for systematic knowledge management, which includes the codification of tacit knowledge, accelerated knowledge transfer between departments and regular updating of intellectual

competencies of personnel. Thus, IS in the high-tech pharmaceutical sector is transformed from a linear action plan to an integrated system, where knowledge management acts as a critical factor determining the speed, quality and ultimate effectiveness of the implementation of innovation priorities [30].

The stages of innovation strategy formation are presented in Fig. 1.3. [10].

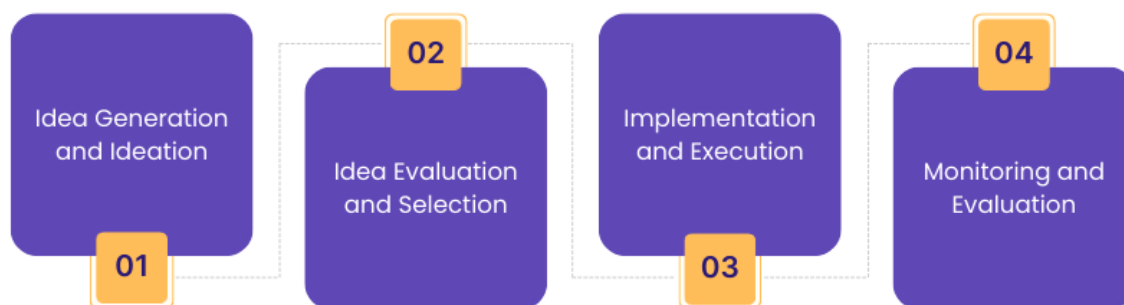


Fig. 1.3. Stages of forming an innovation strategy

1.2. Conceptual foundations of knowledge management

Knowledge management is one of the key paradigms of modern strategic management, especially relevant for high-tech and knowledge-intensive industries, to which pharmaceutical certainly belongs. Conceptually, knowledge management goes beyond simple information management, as it focuses not only on data and information, but also on knowledge as a set of beliefs, experiences, expert judgments and skills used to make decisions and create new value. In a pharmaceutical organization, knowledge is a critical resource that determines the success of each stage of research, from the identification of molecular targets to the passage of clinical trials and the launch of a product. At its core, knowledge management is a systematic process of identifying, creating, storing, disseminating and applying knowledge to achieve the strategic goals of the organization. This involves a holistic approach that encompasses technological platforms, organizational structures and a culture focused on sharing [7].

The epistemological basis of modern knowledge management is the intellectual capital model, which treats knowledge as an intangible asset consisting of human, structural and relative capital. Human capital includes the competencies

and experience of employees; structural capital is organizational systems, databases, patents and procedures that remain in the company after the employee leaves; relative capital encompasses knowledge embedded in relationships with customers, suppliers and regulators. Effective knowledge management, accordingly, is aimed at maximizing the capitalization of human capital by transforming it into structural capital that ensures the long-term sustainability of the organization. A critical element that ensures the dynamics of knowledge is the SECI model. This model focuses on the transformation of knowledge between two main forms: implicit and explicit [17].

Table 1.2 summarizes approaches to defining the concept of “Cognitive Governance” in the scientific literature [4, 29].

Table 1.2

Approaches to defining the concept of "Cognitive Governance"

Approach / School	Main concept and focus	Definition	Representatives / Key ideas
Technological (informational)	Emphasis on infrastructure, databases and IT tools that provide storage and rapid access to explicit knowledge	Knowledge management is the systematic use of information technology to collect, codify, store, and disseminate intellectual assets.	Davenport. Knowledge Management as a Tool for Automating Information Work and Creating Centralized Repositories
Organizational (process)	Focus on embedding UM into business processes, supporting learning and knowledge sharing that occurs within the organization	Knowledge management is a set of processes that govern the creation, dissemination and use of knowledge as a necessary condition for decision-making and innovation.	Probst, Nonaka, Takeuchi. NM as a dynamic process guided by the SECI model (transformation of tacit knowledge into explicit knowledge).
Economic (strategic)	Considers knowledge as an intangible asset and strategic resource that is a source of sustainable competitive advantage and profit	Knowledge management is the process of maximizing the intellectual capital (human, structural, relative) of an organization in order to increase its market value and efficiency.	Sveyby, Edvinsson. A system for measuring intellectual capital

cont. table 1.2

Cultural (behavioral)	Emphasizes the formation of an organizational culture that encourages sharing, trust, mentoring, and learning from mistakes	Knowledge management is about creating an appropriate social and cultural atmosphere that encourages employees to share tacit experience.	Argyris, Senge. KM as a "learning organization"
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Source: compiled by the author

Thus, the conceptual foundations of knowledge management provide a methodological basis for developing an integrated system of indicators that allows evaluating innovation efficiency not ex post facto based on financial results, but proactively, based on the quality and speed of using intellectual assets, which is a necessary condition for the formation of an innovative [20].

1.3. The relationship between knowledge management and the effectiveness of innovation strategy implementation

The effectiveness of implementing an innovation strategy (IS) in the high-tech pharmaceutical sector is a direct function of the quality and dynamics of knowledge management (KM). This relationship is not linear, but synergistic, since KM acts not just as a supporting function, but as a strategic integrator and catalyst of innovation processes. Innovation is essentially the result of knowledge conversion: it is the transformation of ideas, hypotheses and empirical data into new products or processes. Accordingly, any failure in the KM cycle inevitably leads to a decrease in the effectiveness of IS [11].

Conceptually, the impact of KM on IS efficiency occurs through three key channels: reducing cycle time, reducing risk, and improving decision-making quality. First, reducing “time to market” is achieved through effective knowledge transfer. In the pharmaceutical R&D process, which is a funnel with a high probability of failure at each phase, rapid information exchange between research, preclinical, and clinical departments is critical. High-quality KM ensures that knowledge gained, for example, during the preclinical research phase, is instantly

codified and integrated into clinical trial protocols. This minimizes delays caused by duplication of information or the need for repeated data collection. Second, KM is a determining factor in managing the risks of innovation activities. The high failure rate in pharma (over 90% of projects do not reach the market) requires systematic capture and codification of “Suggests that the knowledge gained is used to fix future actions”. If the implicit experience of unsuccessful projects is not transformed into explicit knowledge bases, the organization is doomed to repeat costly mistakes. An effective KM system, on the contrary, turns failures into intellectual assets [8].

The influence of Cognitive Governance on innovation and organizational performance are presented in Fig. 1.4.

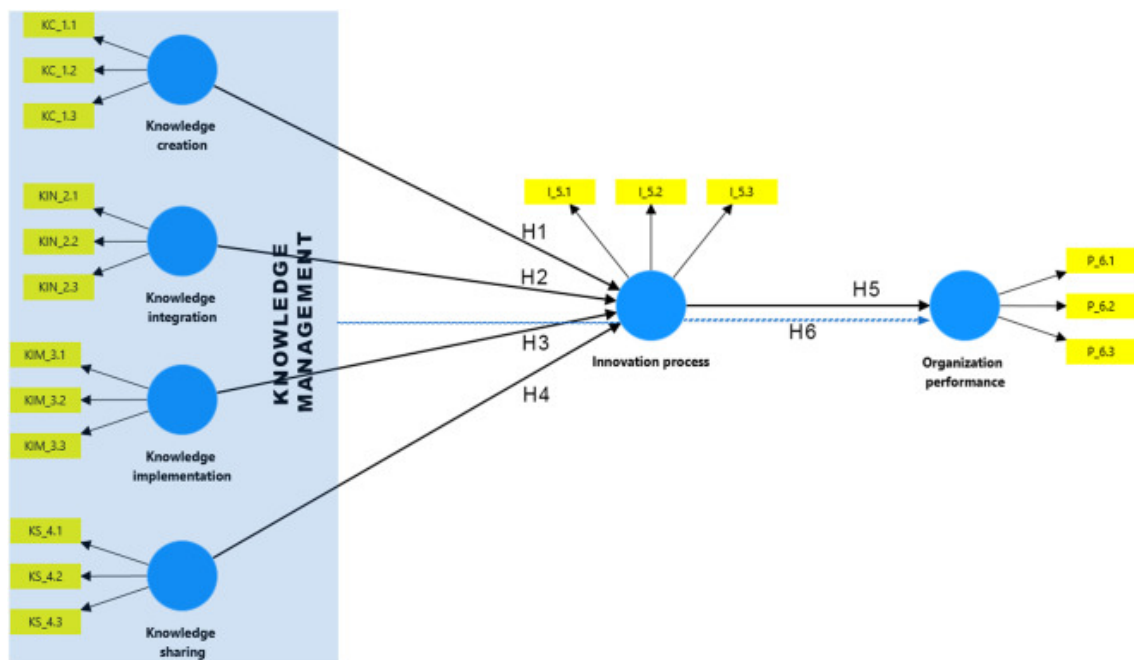


Fig. 1.4 The influence of knowledge management on innovation and organizational performance

Increasing the effectiveness of IS implementation also correlates with the level of maturity of the KM system. Organizations with a high level of KM system maturity demonstrate increased innovative sensitivity and adaptability. Sensitivity is expressed in the ability to more quickly identify external technological and regulatory changes (for example, new diagnostic methods or changes in EMA/FDA requirements) and quickly integrate this external knowledge into internal R&D

processes. Adaptability is the ability to quickly adjust the current IS, reorienting resources to more promising areas, which becomes possible only under the condition of high quality explicit and systematized knowledge [23].

Knowledge management model in the integration of open innovation is presented in Fig. 1.5 [16].

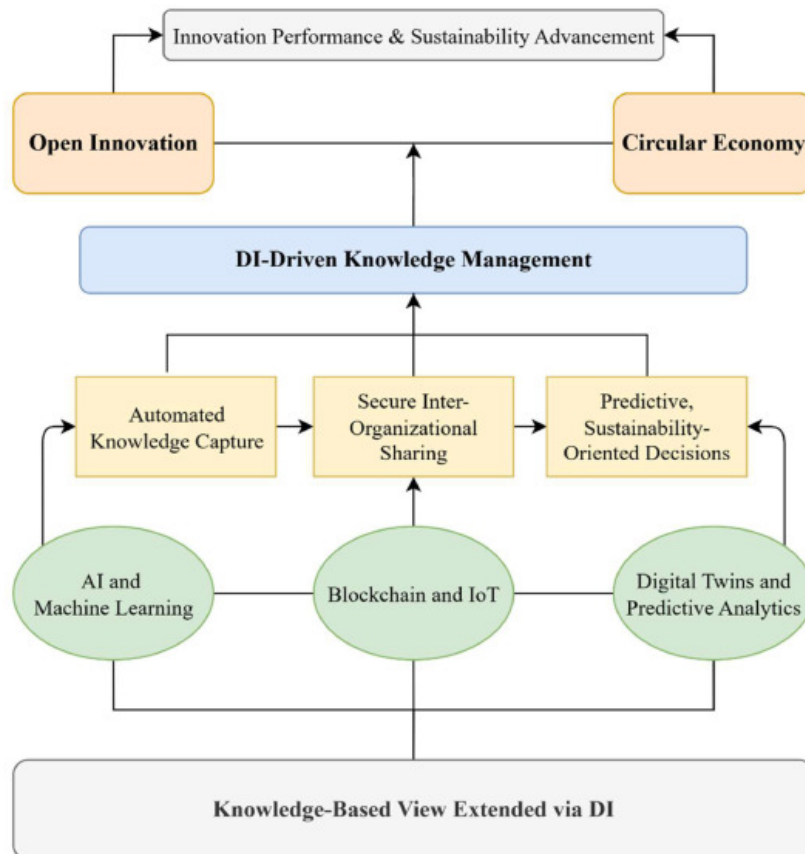


Fig. 1.5 Knowledge management model in the integration of open innovation

In addition, KM directly affects the quality of the organization's innovative potential. Innovative potential, which is a set of resources necessary for innovative activity, is sustainable only when its intellectual component is constantly updated and capitalized. In this context, KM: stimulates the generation of new knowledge through mechanisms of collaboration and encouragement of creativity (socialization and externalization); ensures the preservation and use of existing intellectual capital (structural capital) through patenting, the creation of intellectual bases and personnel training. Thus, the effectiveness of IS should be assessed not only by financial indicators, but also by UM-oriented metrics - such as the coefficient of codification

of implicit knowledge, the index of knowledge reuse and the speed of integration of external technologies [3].

CONCLUSIONS TO CHAPTER 1

1. The theoretical and methodological foundations of the formation of innovation strategy and knowledge management were investigated, which allowed laying a conceptual foundation for further analysis and development of practical recommendations.

2. The economic essence and classification of innovation strategies in the high-tech sector, in particular, in the pharmaceutical industry, are clarified.

3. The conceptual foundations of knowledge management are systematized. It is proven that knowledge management is a systematic process aimed at capitalizing knowledge as an intangible asset and includes five key stages: creation, fixation, organization, transfer and use. A comparative analysis of approaches to defining knowledge management (technological, organizational, economic) is carried out, which allowed formulating an integrative definition of knowledge management as a strategic tool for maximizing the intellectual capital of an organization. The key role in managing the dynamics of knowledge belongs to the SECI model, which describes the continuous conversion of tacit and explicit knowledge.

4. The relationship between knowledge management and the effectiveness of innovation strategy implementation were studied.

CHAPTER 2

ASSESSING THE PERFORMANCE OF A PHARMACEUTICAL COMPANY'S MODERNIZATION ROADMAP

2.1. Structural and financial profile along with the long-term objectives of the retail pharmacy group

The networks functions as a significant entity in the pharmaceutical retail market, which is characterized by high competition, strict state regulation and a critical social function. The organizational and economic characteristics of this network structure reflect the typical features of large retail, operating in conditions of rapid change in consumer preferences and technological progress. The pharmacy chain is a dynamic and multi-profile participant in the retail pharmaceutical market, the successful development of which for over 25 years has been ensured by the pharmaceutical company. This chain is positioned as one of the market leaders, which is confirmed by its significant geographical presence: since 2014, the active development of the franchising direction has allowed to expand the coverage to more than 600 pharmacies located in large cities of Ukraine [1]. The organizational and economic model of the network is comprehensive. It is based on the integration of two main areas of activity of retail trade in pharmaceutical products through its own network and distribution, since the company acts as a supplier of medical devices and medical products for its own retail link. Such a vertically integrated approach ensures quality control at all stages of the supply chain and increases operational efficiency [1].

The key competitive advantages of "Apteka 911" in the market are: the network offers a significant and diversified assortment, covering medicines, biological dietary supplements, medical cosmetics, orthopedic products and patient care items, satisfying a wide range of consumer needs; pricing strategy and quality: a characteristic feature is maintaining a low price level, which, combined with guaranteed product quality and a system of discounts, serves as a powerful tool for

forming customer loyalty. Quality assurance is provided exclusively by cooperation with well-known and reliable distributors, which confirms the originality and high quality of the offered goods; service standard: A high standard of service distinguishes the network among competitors and helps strengthen the brand's position [1].

The top 10 pharmacy chains by number of outlets as of the end of November 2025 are presented in Table 2.1.

Table 2.1

Top 10 pharmacy chains by number of outlets as of the end of December 2025

No	Pharmacy chain	Number of retail outlets as of the end of December 2025	Increase/decrease in the number of retail outlets compared to the same period of the previous year, %
1	Magnolia Pharmacy	913	8.6
2	Gamma-55	896	17.3
3	Sirius-95***	836	17.4
4	Plantain	815	30.8
5	Pharmacist	414	-3.5
6	Pharmacy	363	27.4
7	Med-Service	341	0.6
8	Healthy family	302	18
9	From	299	12
10	D.S.	275	11.3

The strategic goals of the network are integrated at the financial, customer and operational levels and directly correlate with the need to implement an effective innovation strategy supported by knowledge management. The first key goal is market share growth and geographical expansion, which requires the implementation of organizational and service innovations. The role of KM in this direction is to codify and transfer knowledge about successful business models and service standards to new branches, ensuring rapid and high-quality scalability. Analysis of the financial results of the pharmacy chain for the period 2024–2025 (according to Table 2.2) allows us to state a stable positive dynamic of key operating

indicators. Thus, the financial analysis confirms the network's stability and ability to generate profit in conditions of market volatility, which creates a solid resource base for implementing an innovative strategy.

Table 2.2

Report on financial results of the pharmacy chain "PHARMACY 9-1-1"

Row name	For the reporting period 2025, thousand UAH	For the reporting period 2024, thousand UAH
Net income from sales of products (goods, works, services)	158 048.00	130 984.00
Cost of goods sold (goods, works, services)	140 340.00	122 140.00
Gross profit	17 708.00	8 844.00
Other operating income	49 385.00	40 104.00
Administrative costs	41 711.00	44 143.00
Selling expenses	16 266.00	23 288.00
Other operating expenses	1 485.00	494.00
Financial result from operating activities (profit or loss)	7 631.00	
Other income	5 308.00	20 106.00
Other expenses	10 089.00	17 570.00
Financial result before tax (profit or loss)	2 850.00	
Net financial result (profit or loss)	2 850.00	
Total income	2 850.00	-16 441.00

2.2. An audit of the current innovation policy and core transformative operations within the "Apteka 9-1-1" group

An empirical assessment involving 88 staff members of the retail pharmacy network was executed to evaluate the incumbent innovation roadmap and analyze core transformative workflows (Appendix A). We distributed the surveyed respondents by position (Fig. 2.1). It was determined that the largest share of respondents is made up of pharmacy managers, who make up 44%. The second largest group is pharmacists with an indicator of 37%. These two categories together cover the absolute majority of respondents (81%), which indicates a high

representation of personnel directly involved in pharmacy management and dispensing of medicines. Significantly smaller shares are occupied by middle managers (12%) and quality specialists (7%).

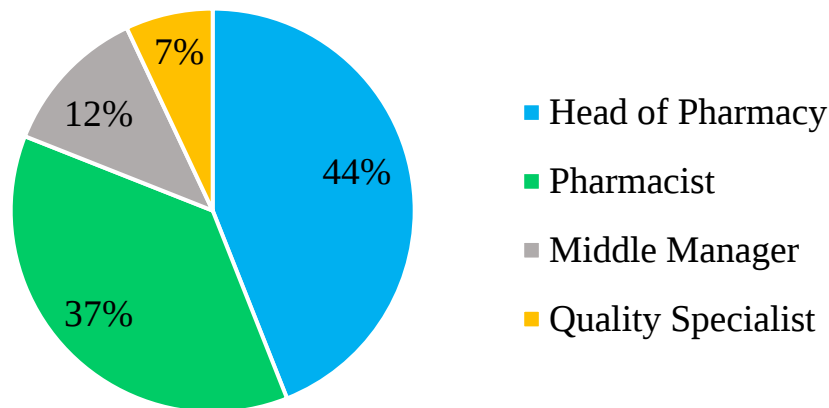


Fig. 2.1. Distribution of surveyed specialists by position

Fig. 2.2 shows the distribution of 88 employees of the pharmacy chain, who were interviewed as part of the diagnostics of the innovation strategy, according to their work experience in the pharmaceutical sector.

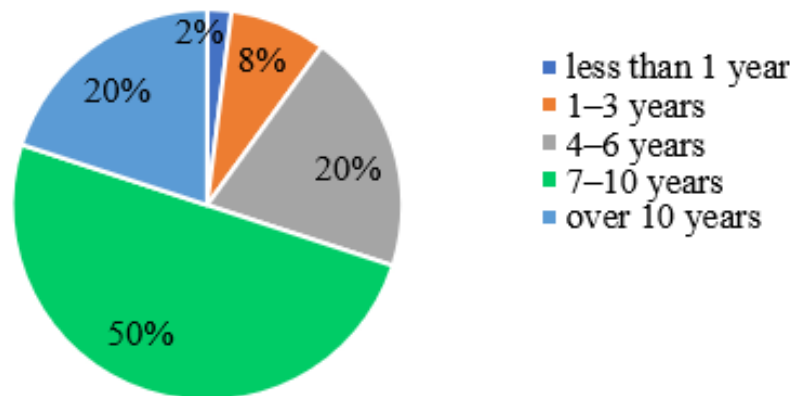


Fig. 2.2 Segmentation of the surveyed cohort based on professional tenure within the pharmaceutical industry

Data analysis shows that most of the surveyed employees have significant work experience. Half of the respondents (50%) have work experience in the range of 7–10 years, which is the largest category. Another 20% of respondents have been working for more than 10 years. Fig. 2.3 demonstrates the educational level of

respondents, which is an important indicator for assessing the professional composition. The vast majority of respondents have a Higher Pharmaceutical education. The second largest number is secondary pharmaceutical education, which is held by 21% of respondents. The presence of pharmaceutical education (higher or secondary) is dominant and accounts for a total of 84% of respondents.

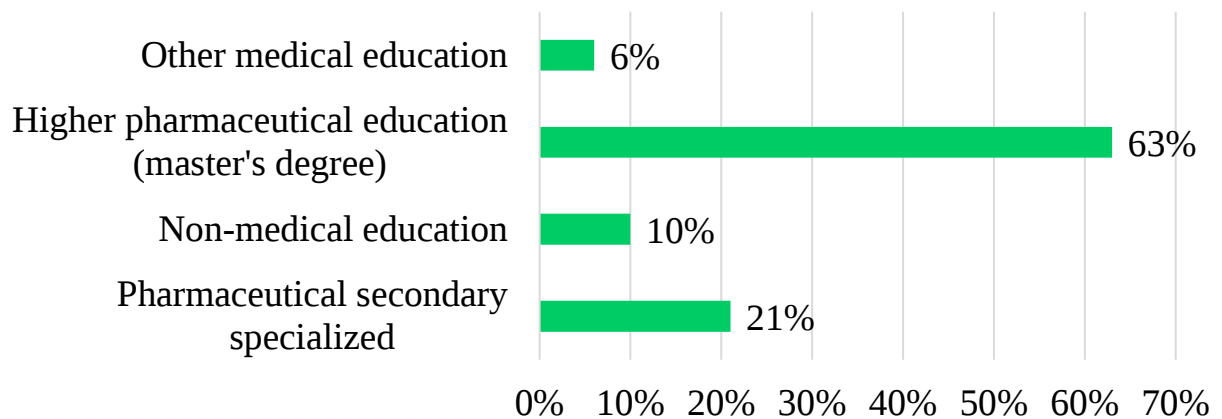


Fig. 2.3 Distribution of surveyed employees by level and type of education

Next, we analyzed the type of pharmacy in which the respondents work (Fig. 2.4). It was determined that the absolute majority of respondents' answers fall on city pharmacies. A significant share is also made up of hospital pharmacy employees. Other types of pharmacies are minimally represented.

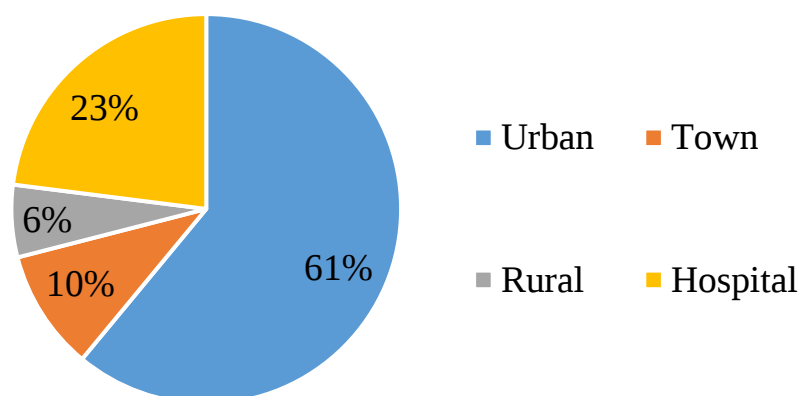


Fig. 2.4 Structural composition of the respondent pool categorized by pharmaceutical outlet type

The diagnostic study revealed a pronounced trend of high self-assessed expertise among the participants. Specifically, a significant majority (85%) of the

surveyed cohort characterized their professional proficiency as either distinguished or above the industry average. Conversely, only a marginal segment identified with a median competency level, while instances of perceived underperformance or low expertise were statistically negligible. The diagnostics of the innovation strategy and processes were carried out on a rating scale from 1 (disagree) to 5 (agree) (Fig. 2.5).

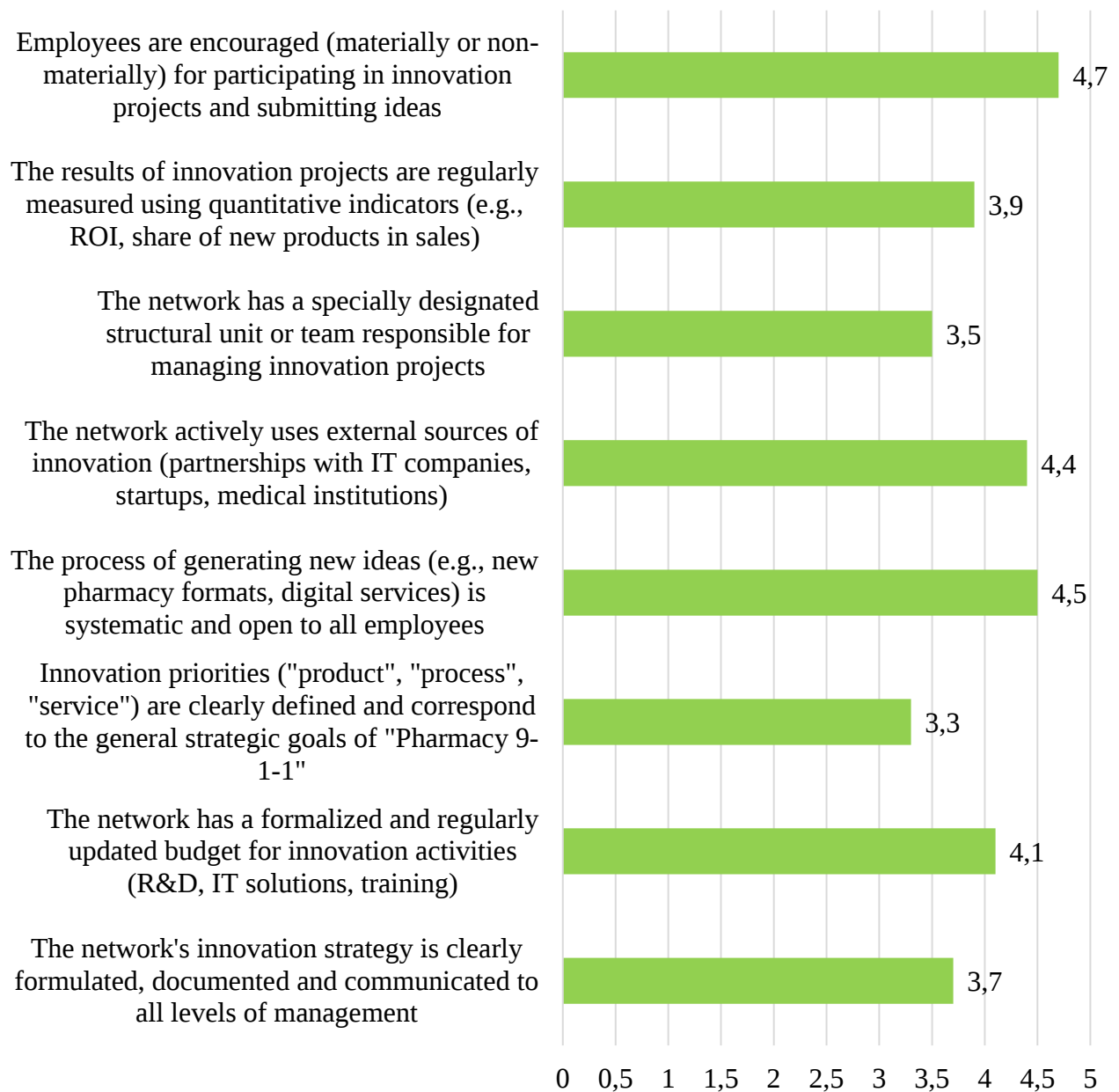


Fig. 2.5 Empirical diagnostics of the strategic innovation framework and transformative workflows within the retail pharmacy network

2.3 Analysis of the current knowledge management system

We assessed the effectiveness of the knowledge management system in the pharmacy chain on a scale from 1 (strongly disagree) to 5 (strongly agree). The

average ratings of the diagnosis of the effectiveness of knowledge management are presented in Fig. 2.6.

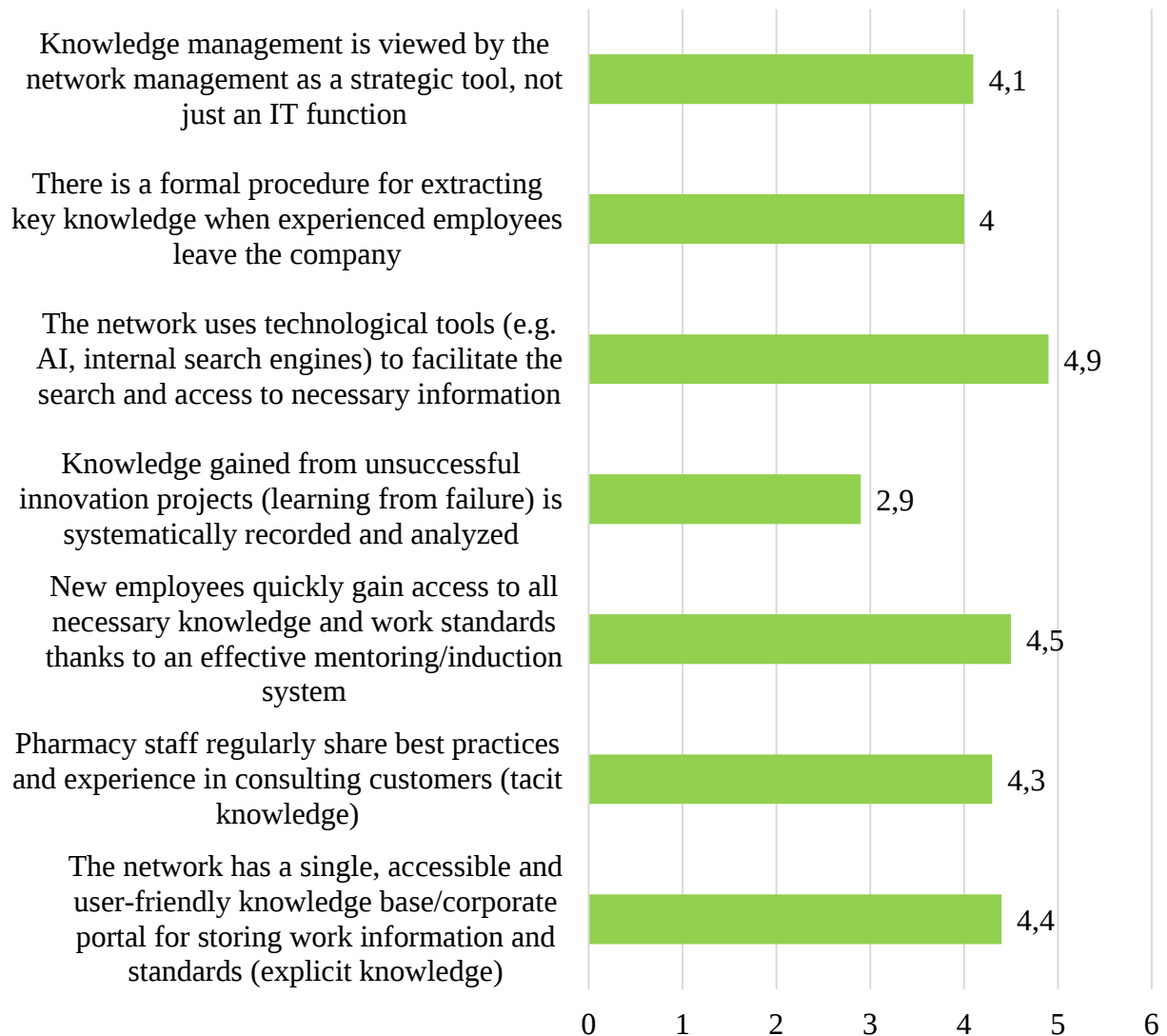


Fig. 2.6 Average assessments of the effectiveness of knowledge management diagnostics in the network

The highest scores were given to aspects related to the use of technology and the speed of access to information: the network uses technological tools to facilitate the search and access to the necessary information. New employees quickly gain access to all necessary knowledge and work standards thanks to an effective mentoring/induction system. There is a single, accessible and convenient knowledge base/corporate portal on the network for storing work information and standards (explicit knowledge). This is consistent with the high technological score and

indicates the presence of a centralized and convenient repository of all necessary documents and standards.

It has been established that the relationship between knowledge management and innovation processes is critical to ensuring the effectiveness, relevance and speed of implementation of new solutions in the pharmaceutical network. Innovation cannot be effective without a reliable knowledge base that feeds, verifies and supports them. Based on the questions included in the questionnaire, key aspects of this integration were highlighted. An effective innovation process is always customer-oriented. The question of whether gathering knowledge about customer needs is the first stage when launching any innovation directly measures the extent to which external knowledge is integrated at the strategic level. This item received the highest score, which indicates a high customer-oriented innovation process of the chain. Before investing resources in a new idea, it is necessary to conduct a check on existing knowledge. The process of evaluating innovative ideas should include a mandatory check for the presence of similar solutions or knowledge within the pharmacy network. This indicator also has a high level of agreement, which confirms the effectiveness of internal validation of ideas.

Innovative projects in the pharmaceutical industry require constant updating of external information. Knowledge gained from market research and competitor analysis must be quickly integrated into the process of developing new services/products. Respondents rated this aspect highly — 4.6 points, indicating the network's quick response to external market data.

One of the main functions of the KM is to transform individual or local success into organizational knowledge. Successful pilot innovation projects should be quickly documented, and their experience used to scale up to the entire network. Here, there is a failure in the system - the indicator was only 3.8 points, which signals insufficient formalization of the processes of documentation and dissemination of successful practices. The pharmaceutical industry is highly regulated and knowledge-intensive. Access to external scientific and clinical knowledge for personnel involved in innovation projects is critical (Fig. 2.7).

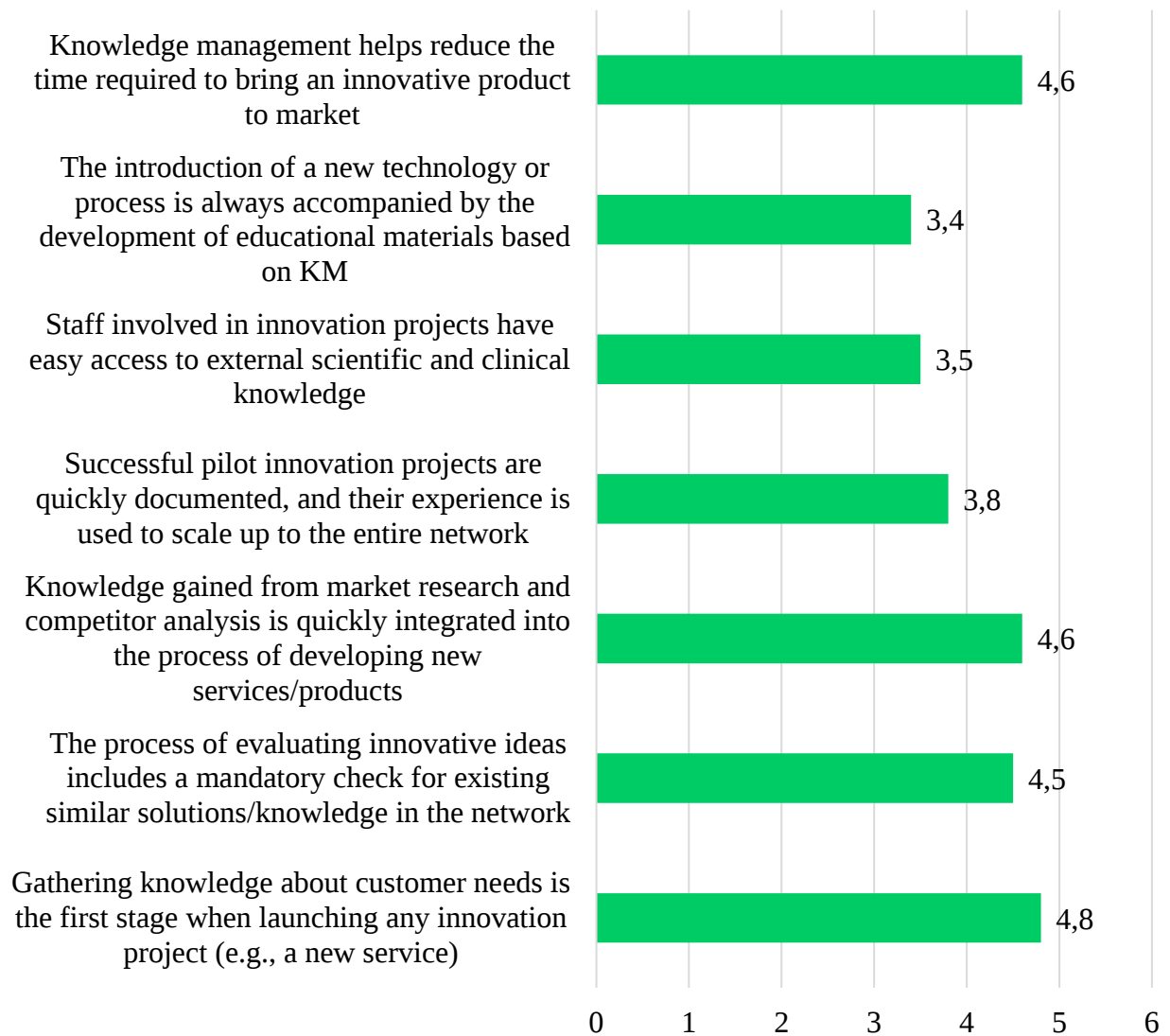


Fig. 2.7 Analysis of the integration of knowledge management into the innovation cycle of a pharmaceutical network

The analysis reveals a critical gap in innovation support, with low scores for academic data access (3.5) and KM-based training (3.4), hindering knowledge transfer and behavioral change. Conversely, a high score of 4.6 confirms that KM effectively accelerates time-to-market.

Ultimately, while KM successfully drives idea generation and market entry, it struggles with providing a solid scientific base and scaling through employee learning.

Next, we conducted a comprehensive assessment of the strategic potential and market positioning the pharmacy chain (Table 2.3).

Table 2.3

**Identification of strategic determinants SWOT profiling of the "Apteka
9-1-1" retail group**

INTERNAL ENVIRONMENT	EXTERNAL ENVIRONMENT
I. STRENGTHS ✓ geographical presence and scale – over 600 pharmacies, aggressive expansion, market leader ✓ vertical integration and quality control – own distribution ensures quality control at all stages ✓ effective pricing policy – maintaining low prices and a system of discounts to build customer loyalty ✓ financial stability and growth – doubling gross profit and reaching net profit in 2025 ✓ high innovation culture and motivation – high encouragement of employees for ideas and customer-orientees of the innovative project ✓ technological maturity and access to knowledge – the highest rate of use of technological tools to access information.	III. OPPORTUNITIES ✓ Geographic expansion and growth – strategic goal of market share growth, supported by a solid resource base ✓ digital transformation and omnichannel – the strategic goal of developing an omnichannel model against the backdrop of high digital competence of staff ✓ Human capital development using highly qualified pharmacists as a critical intellectual asset to provide quality consulting services
II. WEAKNESSES ✓ unclear innovation priorities – the lowest score in terms of defining clear priorities that are consistent with the strategy ✓ lack of a formalized innovation structure – low assessment of the presence of a specially designated team for managing innovation projects ✓ weak learning from mistakes is a critical gap – knowledge gained from unsuccessful projects is analyzed extremely poorly ✓ gaps in scaling and learning: insufficient formalization of processes for documenting and disseminating successful experiences and the weakest aspect in the development of training materials ✓ limited access to scientific knowledge – limited access of staff to external scientific and clinical knowledge ✓ working capital intensity – the business model requires significant financing of large warehouse inventories	IV. THREATS ✓ high competition and state regulation – functioning in an oligopolistic market with competitors that have higher growth and strict state regulation ✓ risks associated with military operations – significant operational losses ✓ market volatility – high need for logistics and inventory management optimization due to market unpredictability

The network leverages vertical integration and high digital maturity to achieve financial stability and double its gross profit. However, it faces internal gaps in knowledge management and innovation formalization, coupled with significant operational risks from intense competition and military actions. Moving forward, the company can capitalize on its technological leadership to drive geographical expansion and omnichannel growth.

2.4 Identifying key problems in innovation management related to inefficient use of knowledge

It was found that among the obstacles to systematizing and analyzing knowledge from unsuccessful innovation projects, the most significant was the lack of a dedicated responsible employee/team for this process, gaining 20% of responses. This indicates that even if there is an understanding of the importance of post-implementation critical review, specific resources are often not assigned to systematically collect, document, and analyze this experience (Fig. 2.8).

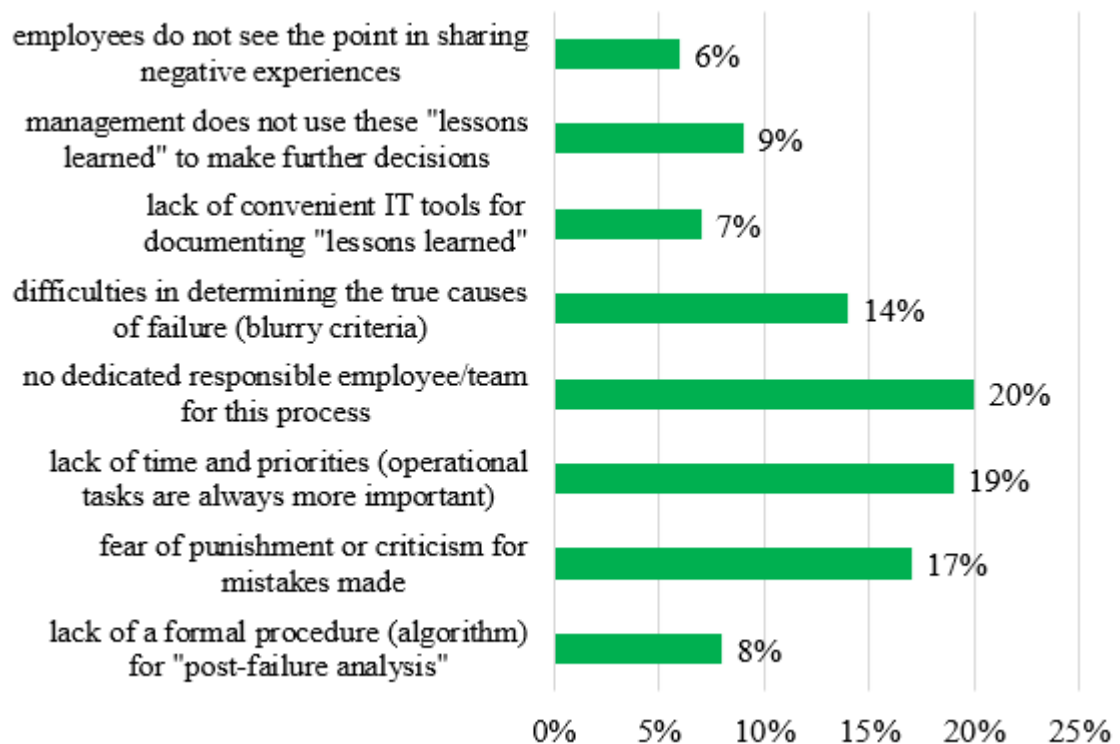


Fig. 2.8 Analysis of obstacles to systematization and analysis of knowledge from unsuccessful innovation projects

Although this indicator is relatively small, it still indicates a lack of a structured approach. Lack of convenient IT tools for documenting retrospective insights – 7%. This is a technical limitation that can complicate the process of capturing knowledge. Employees do not see the point in sharing negative experiences – 6%. This is the smallest but important indicator that reflects the overall level of motivation and culture of knowledge sharing in the organization. In general, the data indicate that the main barriers are cultural and organizational (20%, 19%, 17%), and not only technical or procedural, emphasizing the need to change approaches to priorities, responsibility and create a safe environment for open discussion of mistakes (Fig. 2.8). An analysis of the key barriers to the dissemination of successful experience of innovation projects is presented in Fig. 2.9.

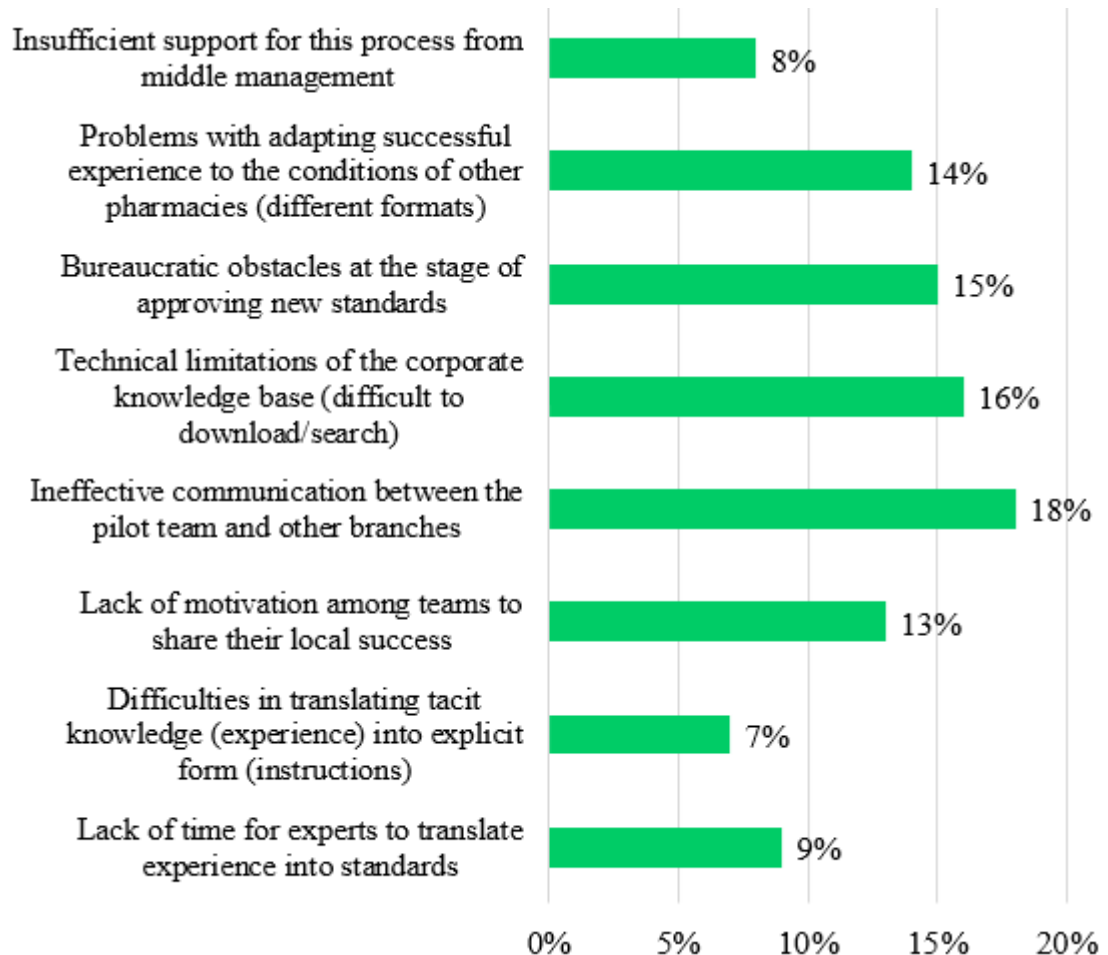


Fig. 2.9 Analysis of key barriers to the dissemination of successful experience of innovative projects

Analysis of the main factors that slow down the rapid documentation and dissemination of successful experiences gained during pilot innovation projects (Fig. 2.10).

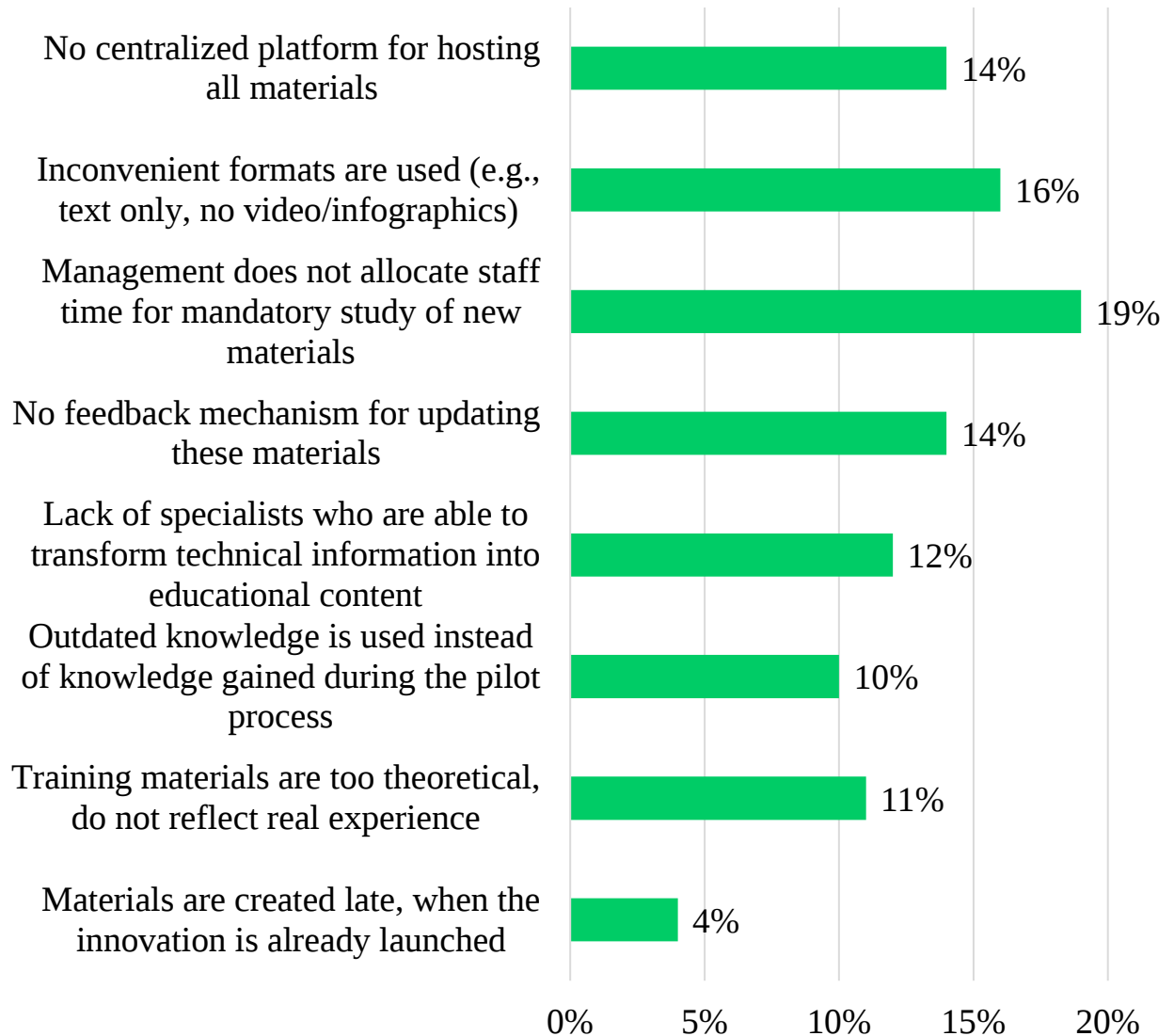


Fig. 2.10 Analysis of the main factors that slow down the rapid documentation and dissemination of successful experience gained during pilot innovation projects

CONCLUSIONS TO CHAPTER 2

1. Pharmacy chain "Apteka 911" is a vertically integrated leader in the pharmaceutical retail market. The network is actively growing and has a significant geographical presence, which confirms an aggressive and effective expansion strategy. Despite significant operating losses due to military operations, the financial analysis states a stable positive dynamic of doubling gross profit and reaching net

profit in 2025. This creates a solid resource base for financing strategic innovations. Human capital is highly qualified pharmacists, whose tacit knowledge is the basis of quality service is recognized as a key prerequisite for the successful implementation of innovations.

2. An empirical assessment, involving a respondent sample of 88 organizational units from the 'Apteka 9-1-1' retail pharmacy network, aimed at verifying the parameters of the incumbent innovation strategy and determining the definitions of key transformative cycles, was executed among expert-oriented personnel with high levels of professional seniority. The diagnostic results substantiated the high intensity of the innovation culture and the technological precision of the enterprise.

3. Objectification of the analysis confirmed a high motivational stimulation of personnel toward engagement in high-technology projects, while the idea generation mechanism is characterized by systemic integrity and transparency. The network demonstrates an extremely high level of integration of digital instruments to ensure informational coherence and possesses an effective protocol for the operational adaptation of new specialists. The imperative of accumulating knowledge regarding consumer preferences as a preliminary phase of innovation initiation indicates a dominant external orientation of strategic development.

4. The reflexive processing of professional deviations was identified as the most critical segment of the knowledge management system. Empirical data indicate an absence of systemic fixation and deconstruction of the cognitive outcomes of unsuccessful projects. There is insufficient formalization of the architecture for documenting and disseminating positive practices across the retail structure, alongside a strategic rupture in the development of methodological tools to support the implementation of innovative solutions. Despite a robust financial-technological basis and high innovation receptivity, network's current strategic course is characterized by discreteness due to systemic lapses in the formalization of cognitive management, regarding the transformation of failure experiences into corrective intelligence and the scaling of successful operational models.

CHAPTER 3

IMPROVEMENT OF THE MECHANISM FOR MANAGEMENT OF THE EFFICIENCY OF THE INNOVATION STRATEGY BASED ON KNOWLEDGE MANAGEMENT

3.1. Development of an integrated system of indicators for evaluating the efficacy of an innovation strategy taking into account knowledge management factors

We have developed an integrated model of ultrasound innovations of the pharmacy chain (Table 3.1). The goal of this model is to create a closed and controlled cycle, where every piece of knowledge is automatically converted into a strategic solution or a scalable standard, increasing the efficiency of innovation activities. Level I – Strategic and Organizational Core. This level provides the necessary structure, mandate, and resources to manage knowledge as a key innovation asset. Level II is the optimization of the KM innovation processes. This level includes three targeted processes that directly correct the weaknesses of the network. Level III – technological support.

Table 3.1

Integrated model of ultrasound innovations of the pharmacy chain Apteka

911

Component	Purpose and activities for "Pharmacy 9-1-1"	Solving the KM problem
1. "Innovation and Knowledge Council"	Creation of a single cross-functional body (management, IT, marketing, pharmacist experts). Determination of clear innovation priorities and approval of the budget for KM	Eliminating structural and strategic ambiguity
2. Documentation and Codification Center	A specially designated command (or function) for converting tacit knowledge (pharmacists' experience, pilot results) into explicit knowledge (instructions, standards, training materials)	Solving the problem of insufficient formalization and scaling of experience

cont. table 3.1

3. Funding and motivation of KM	Introduction of KPIs for managers related to knowledge use (e.g. % implementation of "lessons learned", % use of corporate knowledge base). Encouragement for active exchange of experience	Increasing motivation and eliminating "lack of time" (cultural barrier)
A. Knowledge generation (external focus)	1. Formalize corporate subscription to key scientific and clinical sources. 2. Designate an "internal reference analyst" to validate and contextualize external data. 3. Introduce a "novelty vs. knowledge" validation system to test ideas for scientific consensus and internal lessons	integration of advanced scientific knowledge, increasing the quality of innovative solutions
B. Knowledge transfer (learning and scaling)	1. "Quickly document success" – create CDK instructions 7 days after the pilot. 2. Create an "implementation simulator" and make case studies. 3. Establish regular "peer-to-peer knowledge sharing" meetings (horizontal transfer)	increasing the speed of scaling successful pilot projects, ensuring the quality of competence transfer
B. Use of knowledge	1. introduction of a formal and anonymous "post-failure analysis procedure" (PAP) under the control of the management. 2. creation of a "risk and lessons register" in the knowledge base with a requirement for mandatory review. 3. establishment of positive reinforcement (rewards) for the most useful and thoroughly documented "lesson from failure"	eliminating the cultural barrier of "fear of mistakes", reducing the indicator of "weak learning from failures", preventing the repetition of critical mistakes
1. Unified Knowledge Base 2.0	Improved search functionality (AI relevance), regular automatic removal of outdated content (Question 7).	Increasing trust and using explicit knowledge.
2. Capture & Share tool	Mobile interface for quick (up to 5 minutes) recording of tacit knowledge (photo of successful calculation, comment on service)	Enhancing the exchange of tacit knowledge
3. Learning Management System (LMS)	Integration with CDK for automatic generation of training modules based on new standards. Mandatory testing to confirm knowledge transfer	Ensuring the quality of knowledge transfer

The integrated system of indicators of Apteka 911 for 2024-2026 is presented in Table 3.2. The technological infrastructure of the enterprise must function as a robust foundation that facilitates seamless operations rather than acting as a barrier to progress.

Table 3.2

Integrated system of indicators of the Apteka 911 at 2024-2026

Prospect	Indicator	Unit of measurement	2024	2025	Plan 2026
1. Financial	Return on Investment in Innovation (ROI of Innovation)	%	12%	18%	22%
	Increased revenue from new products/services	% growth	+8%	+15%	+18%
	Cost savings through process optimization	% of operating expenses	1.5%	3.0%	4.0%
	Knowledge/Assets Ratio	Coefficient	0.06	0.07	0.08
2. Customer service	Net Promoter Score (NPS)	Points	55	65	70
	Share of innovative services in total sales	%	10%	15%	20%
	Number of complaints related to the quality of counseling	Number per 1000 transactions	5	3	2
	Share of retained customers	%	85%	88%	90%
3. Internal processes	Innovation development and implementation cycle	Days	90	60	45
	Labor productivity (increase)	% growth (per 1 employee)	5%	8%	10%
	Knowledge base usage index	Avg. number of requests/month/employee	15	25	35
	Number of successfully implemented improvement proposals	Number	40	60	80
4. Learning and development	Knowledge Sharing Culture Index	Points (out of 100)	75	85	90
	Staff competency level (average test score)	%	85%	90%	92%
	Number of created/updated knowledge objects (protocols, cases)	Number	120	150	160
	Staff turnover among critical knowledge carriers	%	5%	3%	< 3%

Through the strategic implementation of the proposed model, the organization aims to significantly mitigate the risks associated with recurring institutional errors while accelerating the expansion of successful pilot projects across the entire network. By systematically integrating external scientific expertise, the quality of innovative solutions is expected to reach a new benchmark, ensuring that the pharmacy chain remains at the cutting edge of the industry. This framework is rooted in a logical progression where foundational investments in human capital and

corporate culture drive the optimization of internal workflows, which in turn enhances the patient experience and ultimately secures long-term financial stability.

The transition toward a knowledge-driven economy within the pharmacy chain is evidenced by the shifting financial landscape. While the initial phase of innovation implementation requires substantial resource allocation, the subsequent maturity of these systems allows for a dramatic increase in the return on investment. This profitability is bolstered by a significant rise in revenue generated from modern products and services, signaling a successful commercialization of new offers. Simultaneously, the mastery of internal best practices allows the organization to achieve substantial operational savings, as accumulated organizational intelligence is leveraged to eliminate inefficiencies. The strategic focus on staff expertise directly translates into enhanced customer loyalty, as evidenced by rising satisfaction scores. As professional consultations become more grounded in the latest pharmaceutical knowledge, the popularity of innovative service offerings continues to grow, and the frequency of service-related grievances drops to a negligible level.

The efficiency of internal processes serves as a critical indicator of the network's ability to transform abstract ideas into tangible services. By fostering an environment that prioritizes the reuse of existing information, the duration of the development cycle for new initiatives is effectively cut in half. Central to this transformation is the active engagement of the workforce with the internal knowledge repository, which becomes an indispensable tool in daily professional activities. Furthermore, the organization has successfully activated an internal mechanism for capturing grassroots improvements, leading to a substantial increase in the number of employee-led innovations that are successfully brought to life. At the core of this entire strategic architecture lies a fundamental shift in corporate values. A vibrant culture of information exchange is being cultivated, where sharing expertise is no longer an optional task but a standard professional expectation. This cultural shift is reinforced by rigorous and continuous training programs that ensure high levels of staff competency. By prioritizing the retention of key experts and specialized knowledge carriers, the chain minimizes the loss of intellectual capital.

Integrated system of indicators of the chain 2024-2026 is presented in table 3.3.

Table 3.3

Integrated system of indicators of the chain at 2024-2026

Indicator	Importance and connection to KM/innovation	Dynamics 2024 → 2026)
Return on Investment in Innovation (ROI of Innovation)	Determines what profit is generated by funds invested in the development and implementation of new products, services and IT solutions. Interpretation: In 2024, ROI is moderate due to initial investment costs and time to scale. By 2026, innovations reach maturity and mass adoption, leveraging accumulated knowledge, providing a significant increase in profitability	12%→22% (significant increase)
Increased revenue from new products/services	Share of total revenue attributable to products/services introduced in the last 3 years. A key indicator of successful commercialization. Interpretation: Growth indicates that the market highly values innovative offerings. In 2026, almost a fifth of revenue will be generated from new offerings, confirming the effectiveness of the innovation strategy	+8%→+18% (Acceleration)
Cost savings through process optimization	Reducing operating costs through the implementation of knowledge about best practices (e.g., optimizing logistics, reducing losses) Interpretation: The effect of UL in processes. In 2024, the savings are relatively small (1.5%), but by 2026, due to the accumulation and implementation of knowledge about efficiency, there is a significant optimization of costs	1.5%→4.0% (doubling the effect)
Net Promoter Score (NPS)	Measures customer loyalty and their willingness to recommend the network. A high NPS is a direct result of high-quality, competent service Interpretation: Successful application of knowledge by pharmacists allows for highly professional consultations and individual solutions, which directly increases loyalty.	55 → 70 (Transition to "World Class" level)
Share of innovative services in total sales	Demonstrates how actively customers use new services (e.g. digital consultations, monitoring) Interpretation: by 2026, every fifth transaction should contain an innovative element, confirming the successful transformation of "Pharmacy 9-1-1" from a simple seller to a provider of medical solutions	10% → 20% (increasing significance)

cont. table 3.3

Number of complaints related to the quality of counseling	An indicator of a direct error or inaccuracy in the application of knowledge. Interpretation: the decrease in complaints (by 60%) indicates the effectiveness of internal training systems, standardization of protocols, and access to up-to-date information	5 → 2 (Significant decrease)
Innovation development and implementation cycle	The time from idea generation to market launch. Speed is critical for innovative advantage. Interpretation: The cycle reduction is halved due to effective KM: knowledge reuse, standard development modules, and rapid information exchange between teams.	90 days → 45 days (Growth doubled)
Knowledge base usage index	Measures how often employees access the internal Knowledge Base for up-to-date information. Interpretation: By 2026, the Knowledge Base becomes the main working tool. The growth of the index indicates that knowledge is easily accessible, relevant and has become an integral part of daily work processes.	15 → 35 (Increasing activity)
Number of successfully implemented improvement proposals	Evaluates the effectiveness of mechanisms for collecting, evaluating, and implementing knowledge generated "from below" (for example, innovative proposals from pharmacists). Interpretation: Doubling the number indicates high staff engagement and the presence of a working knowledge capture system.	40 → 80 (Increase in staff activity)
Knowledge Sharing Culture Index	Assesses the level of trust, willingness to share experience, and encouragement of KM in the organization (based on an internal survey). Interpretation: Achieving 90 points indicates that knowledge sharing has become the norm, not the exception, which is critical for rapid adoption of innovations.	75 → 90 (Building a strong culture)
Staff competency level (average test score)	The average score received by staff when testing knowledge of new products, protocols, and service standards. Interpretation: Increasing the level of competence guarantees high quality consulting and the ability of staff to quickly assimilate complex innovative knowledge.	85% → 92% (Advanced training)
Staff turnover among critical knowledge carriers	Measures the loss of employees who possess unique or key innovation knowledge (e.g., IT solution developers, leading pharmacists). Interpretation: Reduced turnover is the result of effective retention systems that include career growth, recognition, and the opportunity to share one's knowledge (US incentives).	5% → < 3% (Minimization of losses)

Source: compiled by the author

3.2. Assessment of the economic and social effectiveness of the proposed measures for network "Apteka 911"

The assessment of the effectiveness of the proposed IS integrated with KM covers both direct economic effects (financial indicators and efficiency) and indirect social effects (impact on staff, customers and service quality). The table below contains forecast quantitative indicators demonstrating the expected positive impact of the measures in the period 2024–2026 (Table 3.4-3.5).

Table 3.4

Assessment of the economic efficiency of the proposed innovative measures for the pharmacy chain

Indicator	Unit of measurement	Fact (2024)	Forecast (2026)	Effect/Change
1. Net Promoter Score (NPS) of customers * Explanation: Significant growth in NPS reflects an improvement in the quality of consultations and the overall client experience, ensured by highly competent staff.	Points	55	70	+15 points
2. Knowledge Sharing Culture Index * Explanation: A rising index demonstrates the creation of a supportive work environment where employees are willing to share their experiences. This is critical for knowledge retention.	Points (out of 100)	75	90	+15 points
3. Level of competence of personnel (based on testing results) * Explanation: increase in competence provides a higher standard of medical advice, which is a direct social benefit for consumers.	Average score, %	85%	92%	+7 pp.
4. Personnel turnover among critical knowledge carriers * Explanation: Reducing turnover is a social advantage (stability of the team) and an economic benefit (reduction in hiring and training costs). Employees stay because of opportunities for development and participation in innovation processes.	%	5%	< 3%	-2 pp.
5. Number of successfully implemented improvement proposals * Explanation: Doubling the number of offers indicates staff engagement and motivation. Employees feel valued and have an impact on the development of the network.	Number	40	80	+100%

Source: compiled by the author

Table 3.5

Assessment of the social effectiveness of the proposed innovative measures for the pharmacy chain

Indicator	Unit of measurement	Fact (2024)	Forecast (2026)	Effect/Change
1. Net Promoter Score (NPS) of customers * Explanation: Significant growth in NPS reflects improved quality of advice and overall client experience, supported by highly competent staff	Points	55	70	+15 points
2. Knowledge Sharing Culture Index * Explanation: A rising index demonstrates the creation of a supportive work environment where employees are willing to share their experiences. This is critical for knowledge retention.	Points (out of 100)	75	90	+15 points
3. Level of competence of personnel (based on testing results) * Explanation: A 7 pp increase in competence provides a higher standard of medical advice, which is a direct social benefit for consumers	Average score, %	85%	92%	+7 pp.
4. Personnel turnover among critical knowledge carriers * Explanation: Reducing turnover is a social advantage (stability of the team) and an economic benefit (reduction in hiring and training costs). Employees stay because of opportunities for development and participation in innovation processes	%	5%	< 3%	-2 pp.
5. Number of successfully implemented improvement proposals * Explanation: Doubling the number of offers indicates staff engagement and motivation. Employees feel valued and have an impact on the development of the network.	Number	40	80	+100%

Source: compiled by the author

The strategic trajectory of the network for the upcoming period is defined by a holistic transformation that transcends mere financial growth, aiming to solidify its reputation as a responsible and highly qualified medical service provider. To realize this vision of strategic efficiency and operational excellence, the organization

is moving toward the implementation of an innovative centralized inventory management project driven by advanced artificial intelligence technologies. This initiative serves as a cornerstone of the integrated balanced scorecard system, acting as a powerful catalyst for enhancing financial performance, refining internal workflows, and fostering a culture of continuous organizational learning.

The core of this innovation lies in the deployment of a centralized artificial intelligence inventory management system that effectively transforms vast streams of disparate sales data into actionable organizational intelligence. This system integrates a multitude of variables, ranging from seasonal fluctuations and epidemiological trends to specific marketing campaigns and internal logistical constraints. Unlike traditional methods of ordering supplies, this intelligent solution automatically generates optimized demand forecasts for every individual pharmacy within the expansive network down to the level of specific product names. Such a high degree of granularity ensures that essential medications and popular consumer items remain consistently available to patients while simultaneously preventing the unnecessary accumulation of stagnant stock that ties up working capital.

From an economic perspective, the introduction of this AI-based health information system generates a profound multiplicative effect by simultaneously reducing operational expenditures and safeguarding revenue streams. Although the initial and ongoing investments include substantial allocations for development amortization, technical licensing, and the maintenance of a specialized data science team, these costs are rapidly offset by systemic savings. One of the most significant areas of financial recovery is the drastic reduction in product write-offs. By accurately predicting demand, the system minimizes the risk of medications expiring on the shelves, which has historically been a notable source of waste. This precise forecasting ensures that stock levels are perfectly aligned with actual consumption patterns.

Beyond direct inventory savings, the innovation delivers substantial improvements in logistics and storage optimization. By stabilizing the supply chain, the network can significantly reduce the frequency of urgent, unplanned deliveries

and costly inter-branch transfers. The ability to optimize purchase batch sizes further streamlines the procurement process, allowing for more favorable terms with suppliers and a more efficient use of warehouse space.

CONCLUSIONS TO CHAPTER 3

1. The pharmacy chain "Apteka 911" has enhanced its innovation strategy by integrating a three-level knowledge management model with a balanced scorecard system. This framework establishes a closed loop for converting expertise into scalable standards through new governance bodies like the Innovation Council and tools such as the Post-Failure Analysis Procedure. By eliminating cultural barriers and centralizing data, the model ensures that investments in intellectual capital directly drive operational and financial performance.

2. Strategic forecasts for the upcoming period indicate a substantial increase in the return on innovation, with projections rising toward twenty-two percent. Efficiency gains are evidenced by a halved innovation development cycle and significant operational cost savings. Furthermore, the foundational focus on a knowledge-sharing culture is expected to boost staff competency and minimize the turnover of key experts, creating a sustainable ecosystem for continuous growth.

3. A primary driver of this success is the implementation of a centralized artificial intelligence system for inventory management and demand forecasting. This technology converts sales data into actionable insights, significantly increasing turnover by eliminating lost sales and reducing logistical waste. Beyond financial metrics, the strategy enhances social effectiveness by raising patient loyalty and service quality, ultimately securing the network's leadership as a sophisticated, data-driven healthcare provider.

CONCLUSIONS

1. The study confirmed that the effectiveness of an innovation strategy (IS) in the pharmaceutical industry critically depends on the maturity of the knowledge management (KM) system, which is a strategic tool for maximizing intellectual capital and accelerating the innovation cycle.
2. Diagnostics of the pharmacy chain "PHARMACY 9-1-1" revealed that the most critical problems are the lack of formalization of knowledge gained from unsuccessful projects (learning from mistakes, 2.9 points), and insufficiently clear definition of innovation priorities.
3. To address these gaps, the management mechanism has been improved through the development of a three-level integrated model of KM innovations and a balanced scorecard (BSC) for 2024–2026. The framework mandates the creation of a Knowledge Governance Infrastructure complemented by a systematic protocol for retrospective failure audits, aimed at neutralizing socio-cultural constraints within the innovation cycle
4. The key measure for assessing effectiveness was the implementation of the Centralized AI-System for Inventory Management and Demand Forecasting. This innovation, which transforms data into actionable knowledge, provides an expected net economic effect.
5. Thus, the implementation of the AI-system of the Central Healthcare System and the comprehensive model of healthcare innovations is a strategic step that will allow pharmacy chain not only to achieve significant financial growth, but also to form a sustainable innovation culture and consolidate the position of a highly qualified market leader.

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APPENDICES

APPENDIX A**Questionnaire**

To assess and manage the effectiveness of the innovation strategy of the PHARMACY 9-1-1 network based on knowledge management

1. Your position:

☐ Pharmacy manager ☐ Pharmacist ☐ Quality specialist ☐ Middle manager

2. Experience in the pharmaceutical field:

☐ Less than 1 year ☐ 1–3 years ☐ 3–5 years ☐ 5–10 years ☐ More than 10 years

3. Work experience specifically in the network:

☐ Less than 1 year ☐ 1–3 years ☐ 3–5 years ☐ More than 5 years

4. Your education:

☐ Secondary specialized pharmacy ☐ Higher pharmaceutical education (bachelor's degree) ☐ Higher pharmaceutical education (master's degree) ☐ Other medical education ☐ Non-medical education

5. Type of pharmacy you work in:

☐ City ☐ Town ☐ Rural ☐ Hospital ☐ Other

6. Level of digital competence (self-assessment):

☐ High ☐ Above average ☐ Average ☐ Below average ☐ Low

7. Diagnostics of innovation strategy and processes (questions 1–8)

Rating scale: from one (strongly disagree) to five (strongly agree)

No.	Question	1	2	3	4	5
I.1	The network's innovation strategy is clearly formulated, documented and communicated to all levels of management.	☐	☐	☐	☐	☐
I.2	The network has a formalized and regularly updated budget for innovation activities (R&D, IT solutions, training)	☐	☐	☐	☐	☐
I.3	Innovation priorities ("product", "process", "service") are clearly defined and correspond to the overall strategic goals of "Pharmacy 9-1-1"	☐	☐	☐	☐	☐
I.4	The process of generating new ideas (e.g. new pharmacy formats, digital services) is systematic and open to all employees	☐	☐	☐	☐	☐
I.5	The network actively uses external sources of innovation (partnerships with IT companies, startups, medical institutions)	☐	☐	☐	☐	☐
I.6	The network has a dedicated structural unit or team responsible for managing innovation projects.	☐	☐	☐	☐	☐
I.7	The results of innovation projects are regularly measured using quantitative indicators (e.g. ROI, share of new products in sales)	☐	☐	☐	☐	☐
I.8	Employees are encouraged (materially or non-materially) for participating in innovative projects and submitting ideas	☐	☐	☐	☐	☐

8. Analysis of the current knowledge management system (KM) rating scale: from one (strongly disagree) to five (strongly agree)

No.	Question	1	2	3	4	5
II.9	There is a single, accessible and convenient knowledge base/corporate portal on the web for storing work information and standards (explicit knowledge).	☐	☐	☐	☐	☐
II.10	Pharmacy staff regularly share best practices and customer counseling experiences (tacit knowledge).	☐	☐	☐	☐	☐
II.11	New employees quickly gain access to all the necessary knowledge and work standards thanks to an effective mentoring/induction system.	☐	☐	☐	☐	☐

continued appendix A

II.12	Knowledge gained from unsuccessful innovation projects is systematically recorded and analyzed.	☐	☐	☐	☐	☐
II.13	The network uses technological tools (e.g. AI, internal search engines) to facilitate the search and access to the necessary information.	☐	☐	☐	☐	☐
II.14	There is a formal procedure for extracting key knowledge when experienced employees leave the company.	☐	☐	☐	☐	☐
II.15	Knowledge management is viewed by network management as a strategic tool, not just an IT function.	☐	☐	☐	☐	☐

9) The relationship between KM and innovation processes

The assessment utilized a five-point Likert scale, ranging from one (strongly disagree) to five (strongly agree)

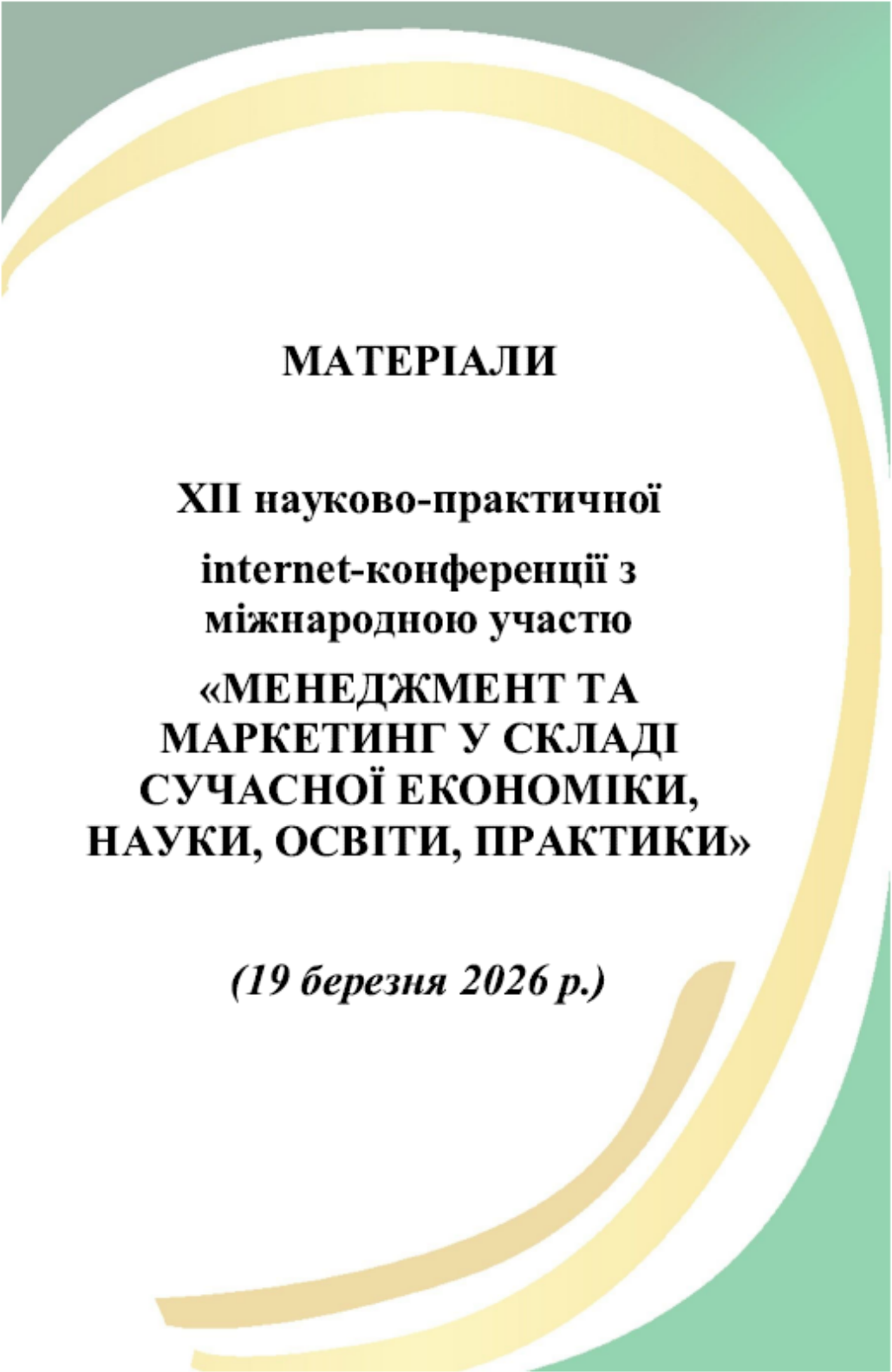
No.	Question	I	II	III	IV	V
III.16	Gathering knowledge about customer needs is the first step when launching any innovation project (for example, a new service).	☐	☐	☐	☐	☐
III.17	The process of evaluating innovative ideas includes a mandatory check for existing similar solutions/knowledge in the network.	☐	☐	☐	☐	☐
III.18	Knowledge gained from market research and competitor analysis is quickly integrated into the process of developing new services/products.	☐	☐	☐	☐	☐
III.19	Successful pilot innovation projects are quickly documented and their experiences are used to scale up to the entire network.	☐	☐	☐	☐	☐
III.20	Staff involved in innovative projects have easy access to external scientific and clinical knowledge.	☐	☐	☐	☐	☐
III.21	The introduction of a new technology or process is always accompanied by the development of educational materials based on KM.	☐	☐	☐	☐	☐
III.22	Knowledge management helps reduce the time it takes to bring an innovative product to market.	☐	☐	☐	☐	☐

10. What is the biggest obstacle to systematically recording and analyzing knowledge gained from unsuccessful innovation projects (score 2.9 points)?

- ☐ Lack of a formal procedure (algorithm).
- ☐ Cultural factor: fear of punishment or criticism for mistakes made.
- ☐ Lack of time and priorities: operational tasks are always more important.
- ☐ There is no dedicated responsible employee/team for this process.
- ☐ Difficulties in determining the true causes of failure (fuzzy criteria).
- ☐ Lack of convenient IT tools for documenting
- ☐ Management does not use these options to make further decisions.
- ☐ Employees see no point in sharing negative experiences.

11. What is the main barrier that slows down the rapid documentation and dissemination of successful experiences from pilot innovation projects throughout the network (score 3.8 points)?

- ☐ Experts lack time to translate their experience into standards.
- ☐ Difficulties in translating tacit knowledge (experience) into explicit form (instructions).
- ☐ Lack of motivation among teams to share their local success.
- ☐ Ineffective communication between the pilot team and other branches.
- ☐ Technical limitations of the corporate knowledge base (difficult to download/search).
- ☐ Bureaucratic obstacles at the stage of approving new standards.
- ☐ Problems with adapting successful experience to the conditions of other pharmacies
- ☐ Insufficient support for this process from middle management.



МАТЕРІАЛИ

**XII науково-практичної
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міжнародною участю
«МЕНЕДЖМЕНТ ТА
МАРКЕТИНГ У СКЛАДІ
СУЧАСНОЇ ЕКОНОМІКИ,
НАУКИ, ОСВІТИ, ПРАКТИКИ»**

(19 березня 2026 р.)

Continuation of Appendix B



*Міністерство охорони здоров'я України
Міністерство освіти і науки України
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забезпечення якості у фармації*

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(19 березня 2026 р.)**

**MATERIALS**

**of XII scientific and practical internet-conference
with international participation**

**«MANAGEMENT AND MARKETING IN THE MODERN
ECONOMY, SCIENCE, EDUCATION AND PRACTICE»
(19 March 2026)**

Харків

2026

СТАТТІ

UDC 615.1:658.012.32

**CONCEPTUALIZING A MECHANISM FOR STRATEGIC MANAGEMENT
OF INNOVATIVE DEVELOPMENT OF A PHARMACEUTICAL
ORGANIZATION**

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РЕЗЮМЕ

Стаття присвячена обґрунтуванню та розробці механізму стратегічного управління інноваційним розвитком фармацевтичних організацій на основі інтеграції систем управління знаннями. Проведено діагностику інноваційної стратегії на прикладі мережі «Аптека 9-1-1». Виявлено, що попри високу технологічну зрілість та відкритість до ідей, існують системні розриви у фіксації досвіду невдач та формалізації відповідальності. Запропоновано концептуальну модель механізму, що базується на циклічній капіталізації інтелектуальних активів.

Ключові слова: фармацевтичний менеджмент, інноваційна стратегія, управління знаннями, аптечна мережа, конкурентоспроможність, розвиток

ABSTRACT

The article is devoted to the justification and development of a mechanism for strategic management of innovative development of pharmaceutical organizations based on the integration of knowledge management systems. Diagnostics of the innovation strategy is carried out using the example of the network "Pharmacy 9-1-1". It is revealed that despite the high technological maturity and openness to ideas, there are systemic gaps in recording the experience of failures and formalizing

Continuation of Appendix B

responsibility. A conceptual model of the mechanism is proposed, based on the cyclical capitalization of intellectual assets.

Key words: pharmaceutical management, innovation strategy, knowledge management, pharmacy network, competitiveness, development

Introduction. The pharmaceutical industry, as one of the most knowledge-intensive and highly risky, operates in conditions of exponential growth of scientific data, increasing regulatory pressure and unprecedented global competition. In these conditions, traditional approaches to innovation management, based solely on financial investments in research, demonstrate diminishing marginal efficiency, which is reflected in Eroom's law, which records the doubling of the cost of developing a new drug every nine years [1-5].

The fundamental importance of an innovation strategy for a pharmaceutical organization lies in its ability to provide a sustainable competitive advantage and competitive position in the market through diversification of the product portfolio and the introduction of original drugs to the market. However, the presence of a strategy does not guarantee its successful implementation. The key problem is the lack of a valid and integrated mechanism for assessing the effectiveness of this strategy, which would consider not only quantitative indicators of output (number of patents, sales volume of new products), but also qualitative indicators characterizing its internal stability and adaptability. It is in this context that knowledge management acquires the status of a strategic imperative [30].

Knowledge management in the pharmaceutical industry acts as a meta-process that integrates all stages of value creation, namely, from the generation of scientific hypotheses and clinical studies to marketing strategies for bringing the product to the market. An effective knowledge management system ensures: intellectual capitalization of internal and external knowledge, including the experience of unsuccessful experiments; minimizing duplication of research and development, reducing the "time to market"; promoting cross-functional cooperation between

Continuation of Appendix B

scientific, clinical and commercial units. Thus, knowledge management is a catalyst for increasing the productivity of innovation processes and reducing their uncertainty

Aim is to develop a mechanism for strategic management of innovative development of a pharmaceutical organization.

Materials and methods. To achieve the goal, a set of methods was used: system-structural analysis – to form the theoretical basis of the mechanism; questionnaire (n=88) – to diagnose innovation processes in the "Pharmacy 9-1-1" network; mathematical statistics methods - to process the survey results on a 5-point Likert scale. The respondents were highly qualified specialists (70% have over 7 years of experience, 84% have specialized education).

Results. A survey of 88 employees of the pharmacy chain "Pharmacy 9-1-1" to diagnose the existing innovation strategy and key innovation processes of the "Pharmacy 9-1-1" network was conducted among highly qualified and experienced personnel (70% have over 7 years of experience, 84% have a pharmaceutical education), revealed a high innovation culture and technological maturity, but significant systemic gaps in the formalization of processes.

It was found that employees are highly encouraged to participate in innovative projects (4.7 points), and the idea generation process is systematic and open (4.5 points). The network demonstrates the highest level of use of technological tools (AI, internal search engines) for accessing information (4.9 points), and also has an effective onboarding process for new employees (4.5 points). Gathering knowledge about customer needs is the first stage in launching innovations (4.8 points), which indicates a high focus on the external market.

Learning from mistakes (a critical gap) was found to be the weakest aspect of the UM system. Knowledge gained from unsuccessful projects is not systematically recorded and analyzed (2.9 points). There is insufficient formalization of the processes of documenting and disseminating successful experiences throughout the network (3.8 points), as well as a critical gap in the development of training materials to support the implementation of innovations (3.4 points). The statement about the clear definition of innovation priorities (3.3 points) received the lowest score in the

Continuation of Appendix B

innovation block, which indicates the need to strengthen the connection between initiatives and the overall strategy. Insufficiently formalized responsibility structure - low assessment of the presence of a specially designated team for managing innovation projects (3.5 points).

The identified problems in knowledge management directly create barriers to the effectiveness of the innovation strategy, in particular in terms of organizational learning and systematization of experience (lack of a dedicated responsible employee/team (20%), lack of time and priorities (19%), fear of punishment/criticism for mistakes (17%), which indicates problems with the culture of openness and trust).

The pharmacy chain "Apteka 9-1-1" has a solid financial and technological foundation, as well as a high innovation culture, but its innovation strategy is imperfect due to systemic gaps in the formalization of knowledge management, especially in the area of learning from failures and scaling successful experiences. To achieve strategic goals (growth of market share, digital transformation), it is necessary to integrate knowledge resources into formalized processes of the innovation cycle.

The results of a qualitative analysis of open-ended responses from respondents allowed us to systematize the key destructive factors that hinder the innovation dynamics of the organization, according to three basic domains: cultural, resource and organizational. In particular, a persistent cultural barrier was identified, associated with the fear of professional criticism for mistakes (17% of responses), which actually paralyzes the mechanisms of horizontal exchange of negative experience. The resource barrier (19%) is manifested due to the shortage of time resources and insufficient clarity in ranking priorities, while the organizational gap (20%) is due to the lack of an institutionalized structure or a profile manager responsible for coordinating innovation cycles.

Based on the identified deficits, a conceptual model of the strategic management mechanism was synthesized, based on the architecture of four functional blocks. The first segment — the knowledge resource block — involves the deployment of a single repository (Knowledge Hub) aimed at transforming latent,

Continuation of Appendix B

implicit knowledge of individual employees (tacit knowledge) into formalized intellectual assets of the organization (explicit knowledge), including the creation of a specialized “library of errors” to prevent the replication of ineffective solutions.

Process formalization is implemented through the introduction of a mandatory Post-Project Review regulation, where verification of results is carried out not only through the prism of financial KPIs, but also based on the metrics of intellectual capital growth. To overcome structural inertia, it is proposed to create a cross-functional transformation office that integrates the competencies of the pharmaceutical, IT and commercial divisions, ensuring synergy between the scientific base and market needs. The final stage of management is closed with a strategic filter, which ensures strict coherence of each innovation initiative with the global vectors of enterprise development, such as large-scale digital transformation or expansion into new segments of the pharmaceutical market.

Conclusions. It is proven that a modern pharmaceutical organization (using the example of “Pharmacy 9-1-1”) has a powerful technological potential (4.9 points), but its innovation strategy is imperfect due to systemic gaps in the formalization of knowledge management.

The key destructive factor is identified as a low culture of failure analysis (2.9 points), which inhibits organizational learning.

The developed strategic management mechanism suggests a transition from fragmented innovation initiatives to a cyclical process of knowledge capitalization. This will allow the network not only to effectively implement digital tools, but also to scale successful experience, minimizing strategic risks.

Continuation of Appendix B

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Continuation of Appendix B



Національний фармацевтичний університет

Кафедра менеджменту, маркетингу та забезпечення якості у фармації

ХІІ Науково-практична internet-конференція з міжнародною участю
“Менеджмент та маркетинг у складі сучасної економіки, науки, освіти,
практики”



СЕРТИФІКАТ УЧАСНИКА № 180

Fennane Hicham

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Досягнуті результати навчання:
використання у професійній діяльності знань щодо впровадження сучасних інноваційних підходів у
фармацевтичному менеджменті та маркетингу, розвиток управлінських і креативних компетентностей у
сфері охорони здоров'я

Ректор закладу
вищої освіти



Олександр КУХТЕНКО

National University of Pharmacy

Faculty pharmaceutical

Department management, marketing and quality assurance in pharmacy

Level of higher education master

Specialty 226 Pharmacy, industrial pharmacy

Educational and professional program Pharmacy

APPROVED
The Head of Department
management, marketing and
quality assurance in
pharmacy

Volodymyr MALYI
«01» September 2025

**ASSIGNMENT
FOR QUALIFICATION WORK
OF AN APPLICANT FOR HIGHER EDUCATION**

Hicham FENNANE

1. Topic of qualification work: «Development of a mechanism for strategic management of innovative development of a pharmaceutical organization», supervisor of qualification work: Iryna BONDARIEVA, C.Sc.Ph, assoc. prof.
approved by order of NUPh from «06» of October 2025 № 266

2. Deadline for submission of qualification work by the applicant for higher education: May 2026

3. Outgoing data for qualification work: sources of scientific literature, directories, retail sector of the pharmaceutical market, legislative and regulatory framework, statistical and reporting data, activity of pharmacy enterprises, analysis of professional periodicals.

4. Contents of the settlement and explanatory note (list of questions that need to be developed): to determine the economic essence, features, types, structure and mechanisms for implementing an innovation strategy in the pharmaceutical industry; to analyze the conceptual foundations of knowledge management, including models, processes, and the role in ensuring the innovative development of an organization; to investigate and substantiate the theoretical and practical relationship between the effectiveness of implementing an innovation strategy and the level of maturity of the knowledge management system of a pharmaceutical organization; to determine the organizational and economic characteristics and analyze the strategic goals of the pharmacy chain "PHARMACY 9-1-1" as the object of research; analyze and diagnose the existing innovation strategy and key innovation processes used in the activities of the "PHARMACY 9-1-1"; to investigate and evaluate the current knowledge management system in the organization, in particular the processes of identifying, storing, distributing and using intellectual assets; to assess the current effectiveness of the innovation strategy and identify key problems and "bottlenecks" in innovation management related to the ineffective use of knowledge; to develop and substantiate an integrated system of indicators for assessing the effectiveness of the innovation strategy, with mandatory consideration of knowledge management factors; to substantiate and develop a holistic model for managing the effectiveness of the innovation strategy by optimizing knowledge management processes; to assess the economic and social effectiveness of the proposed measures and recommendations for the "PHARMACY 9-1-1" and formulate practical recommendations for their implementation.

5. List of graphic material (with exact indication of the required drawings): Figures – 15, tables – 10.

6. Consultants of chapters of qualification work

Chapters	Name, SURNAME, position of consultant	Signature, date	
		assignment was issued	assignment was received
1	Iryna BONDARIEVA, associate professor of higher education institution of department management, marketing and quality assurance in pharmacy	01.09.2025	01.09.2025
2	Iryna BONDARIEVA, associate professor of higher education institution of department management, marketing and quality assurance in pharmacy	30.11.2025	30.11.2025
3	Iryna BONDARIEVA, associate professor of higher education institution of department management, marketing and quality assurance in pharmacy	16.03.2026	16.03.2026

7. Date of issue of the assignment: «01» September 2025.

CALENDAR PLAN

№	Name of stages of qualification work	Deadline for the stages of qualification work	Notes
1	Collection and generalization of data from scientific literature by areas of qualification work	September 2025	done
2	Study of types, structure and mechanisms of implementing an innovation strategy in the pharmaceutical industry	October 2025	done
3	Analysis of the current knowledge management system	November 2025	done
4	Identifying key problems in innovation management related to inefficient use of knowledge	December 2025	done
5.	Development of an integrated system of indicators for assessing the effectiveness of an innovation strategy considering knowledge management factors	January 2026	done
6	Writing and design of qualification work	March 2026	done
7	Approbation of qualification work	May 2026	done
8	Submission of the qualification work to the EC of the National University of Pharmacy	May 2026	done

An applicant of higher education _____ Hicham FENNANE

Supervisor of qualification work _____ Iryna BONDARIEVA

ВИТЯГ З НАКАЗУ

По Національному фармацевтичному університету

«06» жовтня 2025 р.**№ 266**

Фармацевтичний факультет

Затвердити теми кваліфікаційних робіт здобувачам вищої освіти 5 курсу 2025-2026 н. р., група Фм21(4,10д)англ-01, освітньо-професійна програма «Фармація», спеціальність «226 Фармація, промислова фармація», галузь знань «22 Охорона здоров'я», рівень вищої освіти другий (магістерський), денна форма здобуття освіти, термін навчання 4 роки 10 місяців, мова навчання англійська.

Прізвище, ім'я здобувача вищої освіти	Тема кваліфікаційної роботи (українською мовою)	Тема кваліфікаційної роботи (англійською мовою)	Керівник кваліфікаційної роботи	Рецензент кваліфікаційної роботи
Кафедра менеджменту, маркетингу та забезпечення якості у фармації				
Феннан Хішам	Розробка механізму стратегічного управління інноваційним розвитком фармацевтичної організації	Development of a mechanism for strategic management of innovative development of a pharmaceutical organization	доц. Бондарева І.В.	доц. Терещенко Л.В.

Підстава: подання декана фармацевтичного факультету доцента Олександра ГОНЧАРОВА

Ректор**Вірно. Секретар**

ВИСНОВОК
експертної комісії про проведену експертизу
щодо академічного плагіату у кваліфікаційній роботі
здобувача вищої освіти
«11» травня 2026 р. № 333817628

Проаналізувавши кваліфікаційну роботу здобувача вищої освіти ФЕННАН Хішам, групи Фм21(4,10д)англ-01, спеціальності 226 Фармація, промислова фармація, освітньої програми «Фармація» очної (денної) форми здобуття освіти на тему: «Розробка механізму стратегічного управління інноваційним розвитком фармацевтичної організації / Development of a mechanism for strategic management of innovative development of a pharmaceutical organization», експертна комісія дійшла висновку, що робота, представлена до Екзаменаційної комісії для захисту, виконана самостійно і не містить елементів академічного плагіату (копіляції).

Заступник голови Комісії,
заступник директора інституту
в складі ЗВО ННІПФ,
доцент



Олена НОВОСЕЛ

REVIEW

of scientific supervisor for the qualification work of the master's level of higher education of the specialty 226 Pharmacy, industrial pharmacy

Hicham FENNANE

on the topic: «Development of a mechanism for strategic management of innovative development of a pharmaceutical organization»

Relevance of the topic. The pharmaceutical industry, as one of the most knowledge-intensive and highly risky, operates in conditions of exponential growth of scientific data, increasing regulatory pressure and unprecedented global competition. In these conditions, traditional approaches to innovation management, based solely on financial investments in research, demonstrate diminishing marginal efficiency, which is reflected in law, which records the doubling of the cost of developing a new drug every nine year.

Practical value of conclusions, recommendations and their validity. The practical significance of the results of the work lies in the providing specific tools and forecasting estimates that allow achieving strategic efficiency and financial growth of pharmacy chain.

Assessment of work. Hicham FENNANE conducted a significant research work and successfully coped with it, showed the ability to analyze and summarize data from literary sources, to work independently. In the work, the research results are properly interpreted and illustrated with figures. While completing the qualification work, the higher education applicant showed creativity, purposefulness, independence, and perseverance.

General conclusion and recommendations on admission to defend. The qualification work of the 5th year applicant of higher education Phm21(4,10) eng-01 group Hicham FENNANE on the topic: "Development of a mechanism for strategic management of innovative development of a pharmaceutical organization" is a completed scientific study, which in terms of relevance, scientific novelty, theoretical and practical significance meets the requirements for qualification works, and can be presented to the EC of the National University of Pharmacy.

Scientific supervisor

12 May 2026

_____ Iryna BONDARIEVA

REVIEW

**for qualification work of the master's level of higher education, specialty 226
Pharmacy, industrial pharmacy**

Hicham FENNANE

**on the topic: «Development of a mechanism for strategic management of
innovative development of a pharmaceutical organization»**

Relevance of the topic. Knowledge management in the pharmaceutical industry acts as a meta-process that integrates all stages of value creation, namely, from the generation of scientific hypotheses and clinical studies to marketing strategies for bringing the product to the market. An effective knowledge management system ensures: intellectual capitalization of internal and external knowledge, including the experience of unsuccessful experiments; minimizing duplication of research and development, reducing the "time to market"; promoting cross-functional cooperation between scientific, clinical and commercial units.

Theoretical level of work. The qualification work reveals the theoretical foundations of forming innovation strategy and knowledge management.

Author's suggestions on the research topic. Author offers practical tools for implementing the mechanism for managing the effectiveness of the innovation strategy based on knowledge management.

Practical value of conclusions, recommendations and their validity. The practical value of the study is due to the fact that the proposed methodological recommendations and the assessment model can become the basis for the formation of a corporate decision-making support system in pharmaceutical organizations.

Disadvantages of work. As a remark, it should be noted that some results of the literature review, which are presented in the first chapter, need stylistic refinement. In general, these remarks do not reduce the scientific and practical value of the qualification work.

General conclusion and assessment of the work. Hicham FENNANE qualification work "Development of a mechanism for strategic management of innovative development of a pharmaceutical organization" is a scientifically based analytical study that has theoretical and practical significance. The qualification work meets the requirements for qualification papers and can be submitted to the EC of the National University of Pharmacy.

Reviewer _____ assoc. prof. Lyubov TERESHCHENKO

13 May 2026

**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ
ВИТЯГ З ПРОТОКОЛУ № 19**

14 травня 2026 року

м. Харків

**засідання кафедри менеджменту, маркетингу
та забезпечення якості в фармації**

Голова: завідувач кафедри ММЗЯФ, доктор фарм. наук, професор
Малий В. В.

Секретар: доцент ЗВО, канд. фарм. наук, доц. Жадько С.В.

ПРИСУТНІ: зав. кафедри ММЗЯФ, доктор фарм. наук, проф.
Малий В.В., професор ЗВО, докт. фарм. наук, проф. Пестун І.В., професор ЗВО,
докт. фарм. наук, проф. проф. Літвінова О.В., професор ЗВО, докт. фарм. наук,
проф. проф. Коваленко С.М., професор ЗВО, докт. фарм. наук, проф. Крутських
Т.В., професор ЗВО, докт. фарм. наук, проф. проф. Посилкіна О.В., доцент ЗВО,
канд. фарм. наук, доц. Бабічева Г.С., доцент ЗВО, канд. фарм. наук, доц.
Бондарєва І.В., канд. екон. наук, доц. Деренська Я.М., доцент ЗВО, канд. фарм.
наук, доц. Жадько С.В., канд. фарм. наук, доц. Зборовська Т.В., канд. юрид. наук,
доц. Коляда Т.А., канд. фарм. наук, доц. доц. Лісна А.Г., доцент ЗВО, канд. фарм.
наук, доц. Малініна Н.Г., доцент ЗВО, канд. фарм. наук, доц. Рогуля О.Ю.,
здобувачі вищої освіти фармацевтичного факультету.

ПОРЯДОК ДЕННИЙ: Про допуск здобувачів вищої освіти випускного
курсу фармацевтичного факультету спеціальності 226 Фармація, промислова
фармація, освітньо-професійної програми Фармація до захисту кваліфікаційних
робіт в Екзаменаційній комісії НФаУ.

СЛУХАЛИ: Про допуск здобувача вищої освіти факультету
фармацевтичного випускного курсу спеціальності 226 Фармація, промислова
фармація освітньо-професійної програми Фармація групи Фм21(4,10д)англ-01
Хішам ФЕННАН до захисту кваліфікаційної роботи в Екзаменаційній комісії
НФаУ. Кваліфікаційна робота на тему «Розробка механізму стратегічного
управління інноваційним розвитком фармацевтичної організації».

ВИСТУПИЛИ: В обговоренні кваліфікаційної роботи взяли участь
проф. ЗВО Пестун І.В., доц. ЗВО Бабічева Г.С. Керівник кваліфікаційної роботи:
доц., канд. фарм. наук Бондарєва І.В.

УХВАЛИЛИ: Допустити здобувача вищої освіти Хішам ФЕННАН до
захисту кваліфікаційної роботи на тему «Розробка механізму стратегічного
управління інноваційним розвитком фармацевтичної організації» в
Екзаменаційній комісії НФаУ.

Зав. каф. ММЗЯФ, доктор фарм. наук,
професор
Секретар, доцент ЗВО,
канд. фарм. наук, доцент

Володимир МАЛИЙ

Світлана ЖАДЬКО

НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ

**ПОДАННЯ
ГОЛОВІ ЕКЗАМЕНАЦІЙНОЇ КОМІСІЇ
ЩОДО ЗАХИСТУ КВАЛІФІКАЦІЙНОЇ РОБОТИ**

Направляється здобувач вищої освіти Хішам ФЕННАН до захисту кваліфікаційної роботи за галуззю знань 22 Охорона здоров'я спеціальністю 226 Фармація, промислова фармація освітньо-професійною програмою Фармація на тему: «Розробка механізму стратегічного управління інноваційним розвитком фармацевтичної організації».

Кваліфікаційна робота і рецензія додаються.

Декан факультету _____ / Олександр ГОНЧАРОВ /

Висновок керівника кваліфікаційної роботи

Здобувач вищої освіти Хішам ФЕННАН виконала на кафедрі менеджменту, маркетингу та забезпечення якості у фармації НФаУ кваліфікаційну роботу, яка присвячена розробці механізму стратегічного управління інноваційним розвитком фармацевтичної організації.

У першому розділі розкрито теоретико-методологічні засади формування інноваційної стратегії фармацевтичних підприємств. Другий розділ присвячено аналізу ефективності поточної інноваційної стратегії мережі аптек «АПТЕКА 9-1-1», де проведено діагностику ключових процесів і діючої системи управління знаннями, а також ідентифіковано проблеми, що виникають через їхнє неефективне використання. У третьому розділі обґрунтовано напрями вдосконалення механізму управління інноваційною стратегією на основі менеджменту знань.

У цілому подана до захисту кваліфікаційна робота Хішам ФЕННАН на тему «Розробка механізму стратегічного управління інноваційним розвитком фармацевтичної організації» відповідає вимогам, що висуваються до кваліфікаційних робіт, оцінюється позитивно і може бути рекомендована для захисту в Екзаменаційну комісію НФаУ.

Керівник кваліфікаційної роботи _____

Ірина БОНДАРЄВА

12 травня 2026 року

Висновок кафедри про кваліфікаційну роботу

Кваліфікаційну роботу розглянуто. Здобувач вищої освіти Хішам ФЕННАН до захисту даної кваліфікаційної роботи в Екзаменаційній комісії.

Завідувач кафедри
менеджменту, маркетингу та
забезпечення якості у фармації _____

Володимир МАЛИЙ

14 травня 2026 року

Qualification work was defended
of Examination commission on
«09» of June 2026

With the grade _____

Head of the State Examination commission,
D.Pharm.Sc, Professor

_____/Volodymyr YAKOVENKO/