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Characteristics of the healthcare system potential as an object of public administration

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Abstract

The article examines the potential of the healthcare system as a complex, multi-level, and multifunctional object of public administration. It is substantiated that effective potential management is a key prerequisite for ensuring the system's resilience to crisis challenges, improving the quality of medical services, and forming long-term development strategies for the industry. It is determined that the potential of the healthcare system functions as a strategic resource, a tool for optimizing the use of limited resources, a means of increasing investment attractiveness, and a foundation for innovative development.

The prerequisites for the transformation of Ukraine's healthcare system are analyzed, specifically the consequences of the post-Soviet model's functioning, imperfect financial support, personnel shortages, infrastructural obsolescence, and the impact of modern crisis factors, including military actions. The necessity of transitioning to a new model of public administration, focused on the development of potential as a system-forming element, is justified.

The main components of healthcare system potential are identified and structured: human resources (personnel), financial, and infrastructural. The content of human resource potential is revealed through its functional subsystems (medical, educational-scientific, organizational-managerial) and properties (professional-qualificational, quantitative-structural, gender-age). The sources of its formation are characterized, including the higher education system, staff retraining, and international mobility.

Financial potential is considered as a set of resources and mechanisms for their mobilization and utilization, highlighting resource, investment, international, institutional, legal, and procedural components. Infrastructural potential is presented through network-subject, innovative-technological, engineering-technical, transport-logistics, information-digital, and energy components.

Special attention is paid to the adaptive-reserve component of potential as the basis for making strategic public administration decisions under conditions of uncertainty and crises. It is proven that the potential of the healthcare system is cross-sectoral in nature and is influenced by educational, social, financial, investment, and security policies. The proposed approaches allow for the improvement of the methodology of public administration in the sector and the enhancement of its efficiency.

Keywords: healthcare system potential; public administration; human resource potential; financial potential; infrastructural potential; adaptive-reserve component; medical reform; strategic development.

1. Introduction

The potential of the healthcare system is a special, strategically important object of public administration, which must ensure preparedness for crisis phenomena on one hand and the system's future development on the other. Indeed, this constitutes an important component of the foundation for the survival and development of the state. Studying the objective characteristics of the methodology of public administration of the healthcare system's potential is important from the following positions: potential is a component of strategic planning and forecasting of the healthcare system's development; potential management allows for finding reserves for optimizing and rationalizing the use of limited resources; potential is the basis for increasing the investment attractiveness of the healthcare system; potential management is the basis of innovative development.

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2. Literature review

The issue of the healthcare system's potential as an object of public administration is a little-studied object of scientific research. At the same time, certain aspects of this issue have been revealed in the works of domestic scholars dedicated to the problems of healthcare system development: Pushkar O.A., Andreiev Ye.V., Khryapinskyi A.P., Tiurina D.M., Vlasenko S.I., Anishchenko M.A., Kuchmenko V.O., Zhuravel Yu.V., Shalko M.N., Paliukh V.V., Lapychak N.I., Piatnychuk I.D., Seriohina N.O., Bashtannyk O.V., Hanushchyn S.N., Matvieienko I.V., Budzyn V.R., Stovban M.P., Antonova L.V., Melnychenko O.A., Orlova N.S., Yunger V.I., Tyshko D.F., Drahan I.V., Biulai S.V., Serhiienko L.V., Vasyuk N.O., Zaporozhets T.V., Dombrovska S.M., Karamyshev D.V., Kvitka S.A., Makarenko M.V., Kryzyna N.P., Lopushynskyi I.P., Malachynska M.Y., Prykhodchenko L.L., Rynhach N.O., Shestakovska T.L., Khudoba O.V., Bazyliak N.O., Shevchuk R.V., Panchenko O.A., Parubchak I.O., Terentieva A.V., Barzylovych A.D., Hbur Z.V., Petroie O.M., Samofalov D.O., Drahomyretska N.M., Syvak T.V., Havrychenko D.G., Krynychko L.R., Krynychko F.R., and others.

3. The identification of previously unresolved issues and the formulation of research hypotheses

The research hypothesis is based on the assumption that under the conditions of modern crisis challenges and the consequences of military actions, the traditional model of public health administration is irrelevant, and ensuring the resilience and strategic development of the sector is possible only through a transition to a new management paradigm, where the key object is systemic potential (human resource, financial, and infrastructural) with a particular emphasis on the development of its adaptive-reserve component.

4. Purpose, objectives and methods of the study

The research methodology is based on the application of a systems approach to the analysis of healthcare as a complex multifunctional object, as well as the use of structural-functional modeling methods to visualize the architecture of potentials, comparative analysis to contrast the domestic state of the industry with European standards (specifically OECD), and the method of scientific abstraction for the theoretical substantiation of influencing factors and sources of forming the system's resource capabilities at various levels of management.

5. Main results

«After the collapse of the former USSR, Ukraine inherited an extensive and highly centralized healthcare system based on the Semashko model, which could not be maintained at an appropriate level due to the sharp transition to a market economy, economic downturn, and the lack of reforms in this area. This led to a deep crisis in the healthcare system. In recent years, despite high total expenditures on maintaining the healthcare system—a significant portion of which citizens pay out of their own pockets—it has been unable to respond adequately to modern challenges regarding rising morbidity or to protect citizens from excessive treatment costs. According to the WHO Regional Office for Europe, the current state of health of the Ukrainian population is characterized by extremely high morbidity and mortality rates, low life expectancy, and a lack of opportunity to receive proper medical care» [12]. «An inefficient model of financial support cements the structural inefficiency of the system as a whole. Despite the fact that Ukraine spends a significant share of its GDP on healthcare (7.8% in 2013), most of the medical infrastructure is outdated, and medical workers are among the lowest-paid professions. Public spending covers only about half (54.5% in 2013) of all healthcare costs, with the rest being paid by patients out of pocket. This creates significant inequality in access to treatment. According to a 2015 study, only 10% of respondents rated the quality of medical care in Ukraine as good—the lowest rating in Europe» [8]. At the same time, it is worth emphasizing the consequences of the Russian-Ukrainian war, as well as the unreadiness of the current healthcare system for crisis conditions, which requires a transition from the classical model of public administration of the healthcare system to a new model where the priority object is its potential.

The potential of the healthcare system is an extremely complex, multifunctional, and multi-profile object of public administration, which should be considered according to the following components: human resources (Fig. 1), financial (Fig.2), and infrastructural (Fig. 3).

Human resource potential. «The issue of the human resource potential of the healthcare system is vital from the perspective of ensuring the realization of its strategic goals. The safety, adaptability, and resilience of healthcare facilities as a whole, and the quality, efficiency, and safety of medical services in particular, depend on the quality of the personnel. Human resource potential plays a significant role in managing the reputational risks of healthcare facilities and guaranteeing trust from the state, the population, and potential investors. The staff is the face of the healthcare system, forming the perception of how state functions are being fulfilled» [15].

The issue of the human resource potential of the national healthcare system is critically important, as it forms the basis for ensuring the effectiveness, efficiency, and impact of medical care in the country. Today, it is impossible to overestimate the role and significance of medical personnel in the development of medicine. «The effectiveness of the healthcare system is largely determined by its resource provision, primarily human resources. Among the urgent tasks facing the healthcare system, personnel provision stands at the forefront. Medical personnel are the primary and most significant part of the healthcare system, ensuring the effective and efficient operation of not only the sector as a whole but also its individual objects and structures» [1]. It is the availability of personnel, their qualifications and distribution, motivation, working conditions, remuneration, social welfare, and the material-technical and technological support of the labor process that determine the proper level of medical care for the population. Personnel are largely responsible for implementing effective reforms in the healthcare sector. Strengthening human resource provision is increasingly recognized as a key factor in the stable operation of the healthcare system [4].

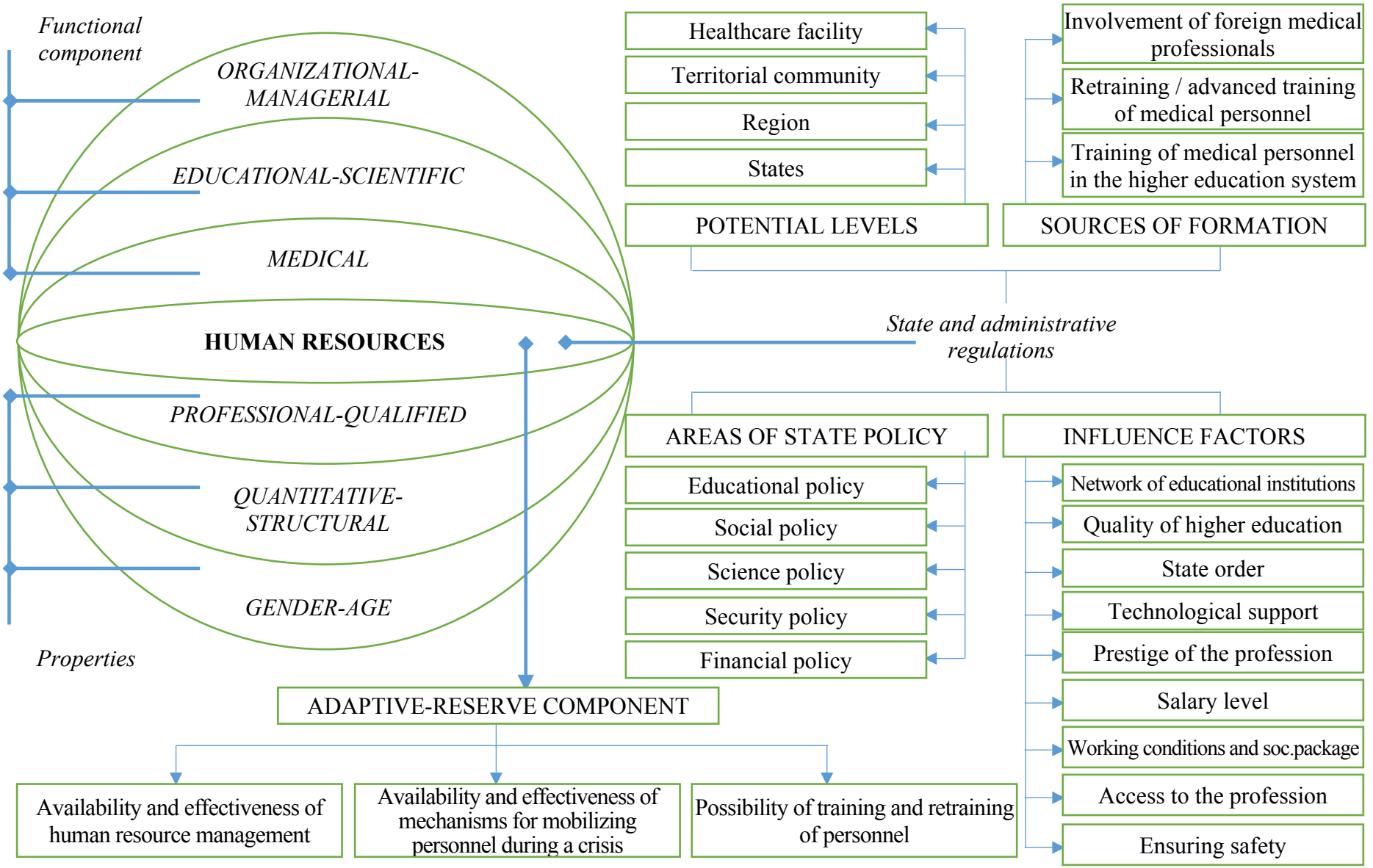

Fig. 1. Characteristics of the healthcare system's human resource potential as an object of public administration

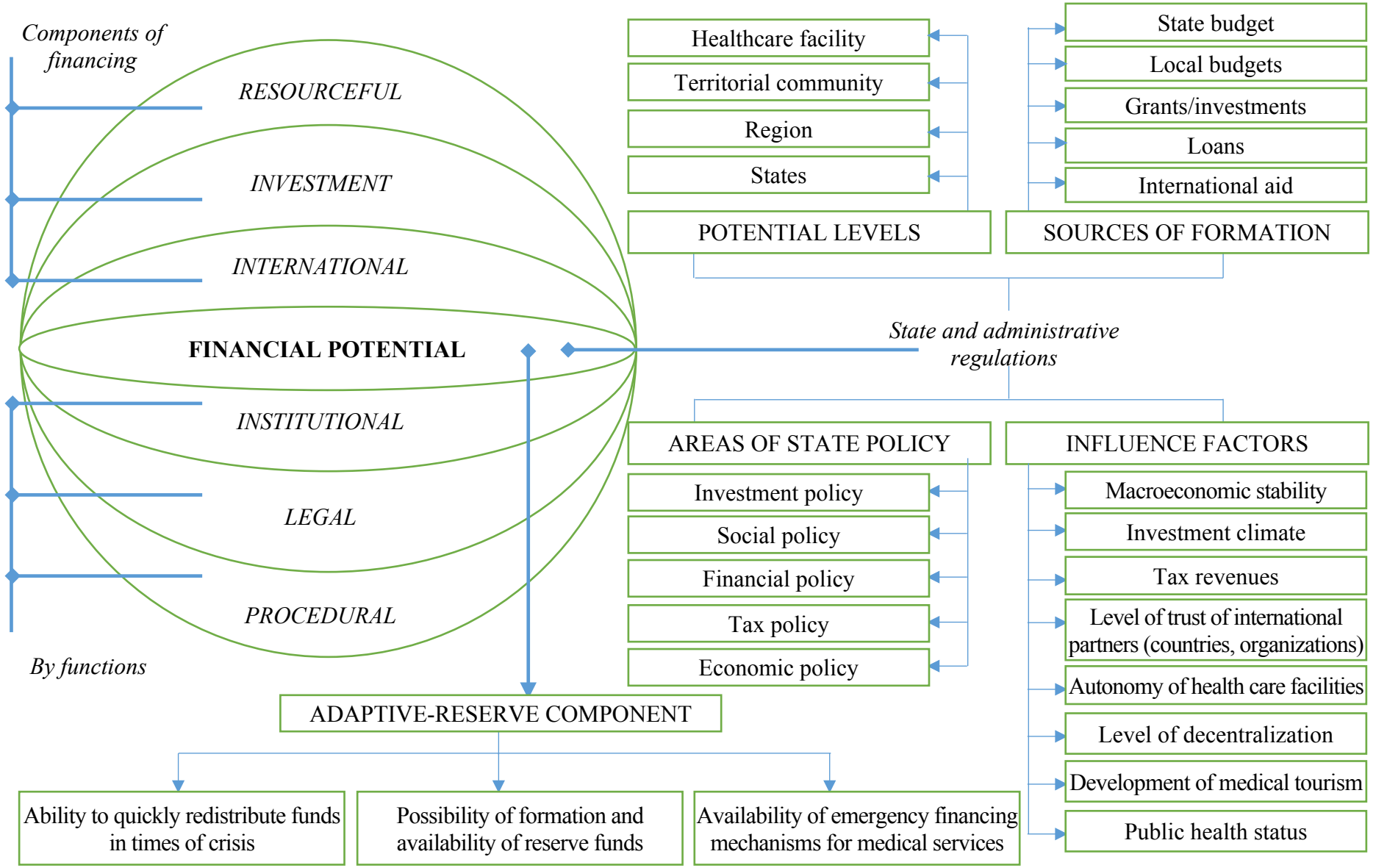

Fig. 2. Characteristics of the healthcare system's financial potential as an object of public administration

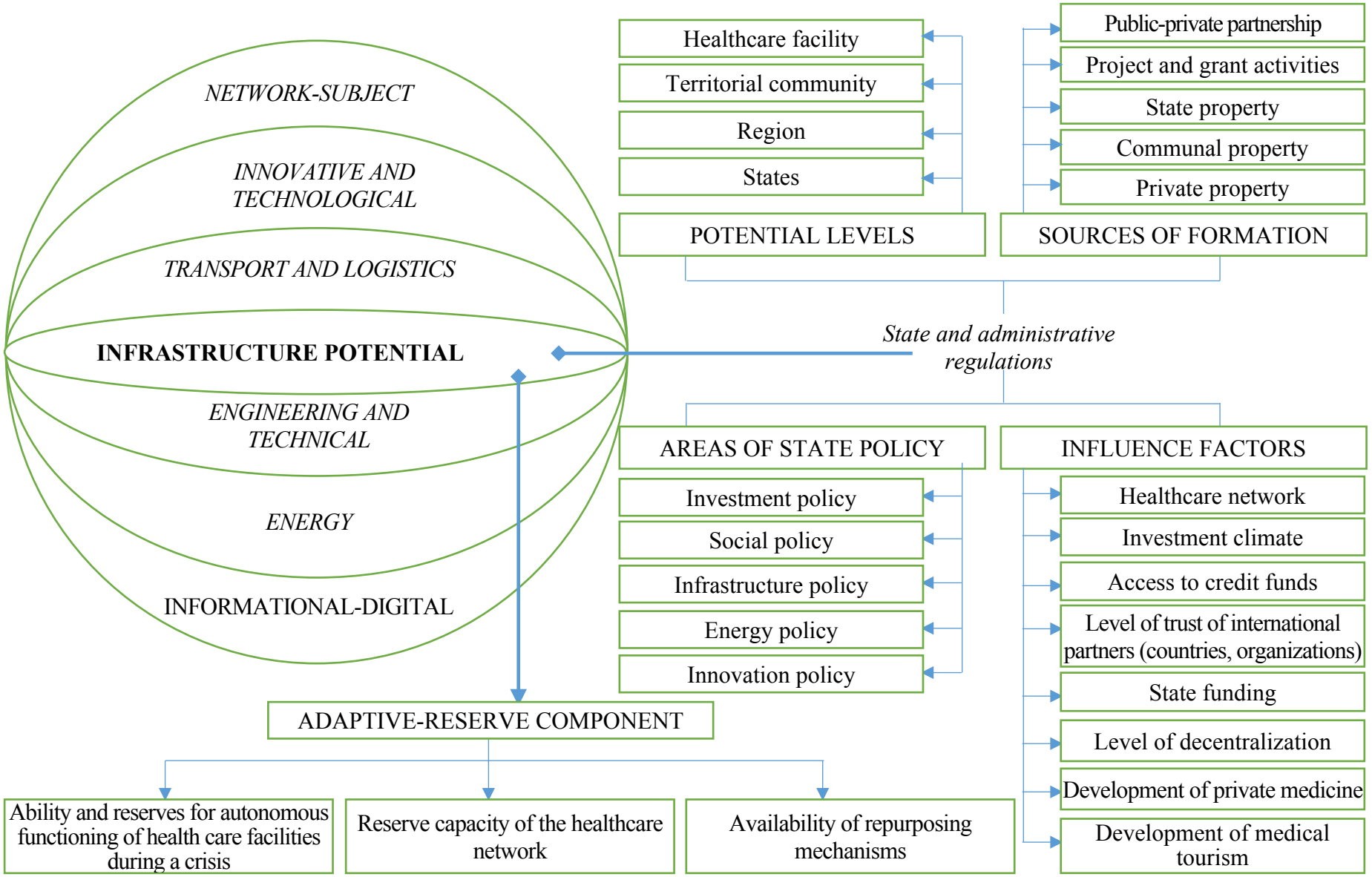

Fig. 3. Characteristics of the healthcare system's infrastructural potential as an object of public administration

The issue of transforming the management of the human resource potential of the national healthcare system is actualized by a set of problems, the core of which is the constant growth in the demand for medical personnel due to a combination of medical and non-medical issues. «Among the urgent tasks facing the national healthcare system, the improvement of personnel policy is paramount. Human resource potential is the most significant component of the healthcare system's resource provision. The availability of personnel, their qualifications and distribution, working conditions, remuneration, social welfare, and material-technical and technological support of the labor process determine the proper level of medical care for the population. Personnel policy is designed to ensure the effective operation of the medical sector. This is confirmed by international experts who state that to eliminate risks on the way to achieving national and global health goals, it is necessary to create a contingent of skilled, motivated, and authoritative healthcare workers. Effective personnel policy should be aimed at improving the performance of both individual medical workers and the healthcare system as a whole. Furthermore, the strategy for developing personnel policy must be based on the actual needs of the medical sector» [1].

Among the medical problems is the increasing demand for medical services, especially in conditions of epidemics and pandemics, as occurred with COVID-19. Regarding non-medical problems, the priorities include a decline in the quality of training for medical workers in the higher education system, demographic changes, and the falling prestige of the medical profession. «Today, no state in the world can ensure a high standard of living and well-being for its citizens without building a highly efficient healthcare system designed to guarantee every resident timely and high-quality emergency medical care. However, as practice shows, in recent years, a stable trend toward a decrease in the number of medical workers has emerged in many developed countries. Naturally, this leads to a deterioration in the organization of medical services, reduces the accessibility of medical care, complicates the circumstances and conditions of its receipt, increases patient waiting times for appointments, etc. Modern global problems, including epidemics, military conflicts, population aging trends, and rising morbidity rates, cause a growing need for medical services and further exacerbate the necessity for a qualitative restoration of healthcare human resource potential. Developed countries increasingly solve the problem of medical staff shortages through international migration of medical personnel, stimulating it with higher levels of pay and a decent standard of living. Meanwhile, for low- and middle-income countries, the deficit of human resource potential in the healthcare sector is becoming increasingly obvious» [14].

Significant attention is paid to human resource potential by European partners, especially in the context of Ukraine's European integration processes. Accordingly, there is a need to revise the current state regulation of the human resource potential of the national healthcare system and to form a set of measures to improve personnel management mechanisms.

The Organisation for Economic Co-operation and Development (OECD) published the results of the «Health at a Glance: Europe 2024» study, which identified directions for solving the shortage of medical personnel in the European Union:

«– The European healthcare system is facing a serious crisis. Twenty EU countries reported a shortage of doctors in 2022 and 2023, while 15 countries reported a shortage of nurses. Based on minimum thresholds for ensuring Universal Health Coverage (UHC), EU countries had an estimated shortage of approximately 1.2 million doctors, nurses, and midwives in 2022. Dual demographic challenges—an aging population that increases the demand for medical services and an aging workforce that increases the need to replace current medical workers as they retire—are key drivers of this deficit. More than a third of doctors and a quarter of nurses in the EU are over the age of 55 and are expected to retire in the coming years. At the same time, interest in healthcare careers among young people is declining, with interest in nursing decreasing in more than half of EU countries between 2018 and 2022. Health workforce planning is essential to guide the policymaking process and ensure sufficient staffing and qualifications of medical workers.

– To address the acute shortage of the domestic workforce, European countries are increasingly relying on attracting foreign-trained medical workers. After a temporary reduction during the first two years of the pandemic, the influx of foreign-trained doctors to European countries increased by 17% in 2022 compared to 2019, while the influx of foreign-trained nurses increased by 72%. In 2023, over 40% of doctors in Norway, Ireland, and Switzerland, as well as over 50% of nurses in Ireland, were foreign-trained. While over-reliance on foreign-trained medical workers provides a quick fix for immediate needs, it risks exacerbating workforce shortages and overall instability in countries of origin, which are often low-income countries already facing acute constraints in the healthcare sector».

«– Solving the healthcare workforce crisis requires a multifaceted approach. In the short term, improving working conditions and remuneration is crucial to increasing the attractiveness of the profession and retaining existing healthcare workers. Expanding education and training opportunities for new doctors and nurses is also vital to increasing supply, although its impact will only be felt in the medium and long term. Given the slow average growth rate of new nursing graduates in the EU—only 0.5% per year between 2012 and 2022—attracting enough young people to meet growing demand is a significant challenge. Optimizing the skill mix, for example, through wider use of advanced practice nurses, as well as leveraging digital technologies and artificial intelligence, will be essential to increasing healthcare worker productivity and allowing them to focus more on patient care» [9].

It should be noted that most of these problems are also characteristic of Ukraine. The Center for Economic and Social Research of the National Institute for Strategic Studies published an analytical note stating the following: «The main personnel problems in the healthcare system (HCS) of Ukraine are a shortage of qualified medical workers, regional unevenness in the provision of medical personnel to the population, lack of motivation among medical staff for effective labor due to an imperfect remuneration system, low occupancy of medical

positions in certain specialties, a high proportion of retirement-age workers, an outdated regulatory framework on sectoral personnel policy, a sub-optimal ratio between doctors and junior medical personnel, as well as chronic underfunding of the healthcare system» [2].

The components of human resource potential by functional area are:

− Organizational-managerial potential of the healthcare system – the availability of a set of medical and non-medical labor resources responsible for the organization and management of the healthcare system at the state, regional, and local levels, as well as at the level of individual healthcare providers, and the capacity for their training in national and foreign higher education institutions and retraining to implement organizational, managerial, and information functions.

− Educational-scientific potential of the healthcare system – the availability of a set of educational and scientific labor resources responsible for the training and retraining of medical personnel and conducting scientific research in medicine (by scientific specialties), and the capacity for their training in national and foreign higher education institutions and scientific entities to implement educational and scientific functions.

− Medical potential of the healthcare system – the availability of a set of medical labor resources involved in the delivery of medical services (provision of medical care) in state, municipal, and private healthcare facilities, and the capacity for their training in national and foreign higher education institutions and retraining.

To assess the level of human resource potential and its management, we propose analyzing it according to the following properties:

− Professional-qualificational properties – characteristics of the medical potential by professional and qualification areas (doctors and other medical personnel) to assess the feasibility of providing medical services in normal and crisis periods and the potential for future growth.

− Quantitative-structural properties – characteristics of the structure of medical, educational-scientific, and organizational-managerial human resource potential and the capacity for its future expansion.

− Gender-age properties – characteristics of the gender and age composition of the medical, organizational-managerial, and educational-scientific human resource potential to assess the need for its future replenishment.

An important component of the public administration of healthcare potential is the assessment of the provision of medical and non-medical personnel at all levels of the healthcare system.

The sources of human resource potential formation can be considered as follows:

1. Training of medical personnel in the higher education system – «this is a long-term, systematic, and planned process managed on the basis of state standards, regulatory, and educational-methodological documentation that determines the content of education and the organization of training in higher education institutions» [3]. Higher medical education is a complex social phenomenon and an object of public administration of healthcare human resource potential. At the same time, higher medical education is sensitive to both educational reforms and healthcare system restructuring. «Ukraine's healthcare system is in search of new ways to build models that meet European standards. Achieving this requires reforming higher medical education. Reforms in higher medical education necessitate studying foreign experience in training future healthcare specialists. Countries where the training of future healthcare specialists (e.g., doctors) operates in accordance with European standards are of significant interest» [3].

«During the global transition to a Knowledge Society, medical education in Ukraine is in a constant process of harmonization with the global higher education space. This is facilitated by relevant EU directives and documents from the World Health Organization and the World Federation for Medical Education, which define the basic requirements for the duration, content, and quality control system of medical training—resources that are becoming increasingly scarce in Ukraine every year» [10].

«In Ukraine, medical HEIs graduate a large number of young doctors; however, not all of them can perform basic medical and nursing manipulations, conduct an informative patient examination, or even determine a treatment direction. We can see the results today. There is already a shortage of competent, skilled doctors in the labor market, but the situation could become catastrophic in 5–10 years. In European countries, there is also a shortage of medical personnel, but it is linked to the reluctance of young people to study and work extremely hard in their early years to achieve generous but distant prospects in 15–20–25 years. However, almost 100% of HEI graduates there possess strong practical skills and knowledge» [3]. The aforementioned expands the understanding of the healthcare system's human resource potential as an object of public administration. In subsequent studies, we have conducted an assessment of medical personnel training within the higher education system.

2. Retraining and professional development of medical personnel. Currently, the issue of retraining and advanced training for medical staff rests with medical universities. However, a compelling proposal for developing this area of human resource potential is the recommendation by Ukrainian researcher V.I. Yunger: «It is proposed to establish international and national educational centers whose primary goal is to provide educational services within non-formal education and professional development for medical personnel, which does not entail obtaining a specific educational degree. Due to the social significance of the healthcare system both during wartime and the post-war period, there is a need to license such educational services. Accordingly, the licensing authority should be the Ministry of Education and Science of Ukraine. Requirements for obtaining a license should be based on the interests of the main stakeholder, namely the Ministry of Health of Ukraine… The creation of training centers at healthcare facilities is proposed for the practical retraining of physicians, professional development, and training in the use of the latest technologies in diagnostics and treatment. This implies expanding the activities of healthcare facilities regarding the possibility of providing educational services for the professional development of medical workers» [15].

3. Recruitment of foreign medical workers is one of the most efficient tools for strengthening the human resource potential of the healthcare system. In the context of labor market globalization and healthcare system integration, international mobility of medical personnel is becoming a vital component of state personnel policy. Recruiting foreign medical workers fulfills several objectives, including: strengthening the staffing of healthcare facilities; reducing the imbalance between the demand and supply of medical services; transferring modern clinical practices and technologies; improving the quality of medical care; and developing international cooperation and integration into the European health space. Key areas for improving the efficiency of recruiting foreign medical personnel include: simplifying diploma recognition procedures; licensing medical practice; streamlining migration procedures; and providing motivational incentives.

It is important to note that the key factors influencing the human resource potential of the healthcare system are: the network of educational institutions; the quality of higher education; the state commission for training medical personnel; the prestige of the profession; the level of remuneration; working conditions and social benefits; access to the profession; safety guarantees; and technological support.

The complexity and intersystemic nature of human resource potential as an object of public administration determine its involvement in the formation and implementation of state policies such as educational, social, scientific, security, and financial policies.

The formulation of forecasts and the development of strategic public administration decisions depend on the level of the adaptive-reserve component of the healthcare system's human resource potential, namely:

− The availability and management efficiency of personnel reserves;

− The presence and effectiveness of mechanisms for mobilizing personnel during crises;

− The capacity for staff training and retraining.

Financial Potential. «No sphere in a market economy, including healthcare, can develop successfully without a well-established system of financial support. Its new mechanisms facilitate qualitative changes in the provision of medical services, being simultaneously one of the decisive factors when making decisions to expand their range. The diversity of existing problems in the financial support system of healthcare in Ukraine, the ambiguity of their assessment and practical resolution, and the search for opportunities to use various forms of interaction between the state and entrepreneurial structures in financing the medical sphere determine the relevance of this study» [13]. In our view, the financial support system of healthcare as an object of public administration must be revised from the standpoint of forecasting, and therefore, the assessment and management of financial potential.

«For the effective development of financial support for such an important sector of the economy as healthcare, it is necessary to develop and implement a series of multifaceted measures: organizational, regulatory, economic, social, medical, scientific, and cultural. Recognition of the current crisis in the medical sector in Ukraine and the growing scale of deprivation of vital medical needs forced the country's leadership to begin a complete reform of the system only in 2018. The main principles for improvement, efficiency enhancement, and modernization of the public health system prioritized the patient's requirements and their financial capacity. Primarily, the system for ensuring the accessibility of medical services was reformed by expanding the range of free medical services (within the approved Program of Medical Guarantees, including new diseases that are major mortality factors in Ukraine). Secondly, the state focused its attention on expanding the quality of provided medical services» [6]. Accordingly, the reform of the financial support system has significantly transformed financial potential, requiring innovative public administration decisions.

Public administration of financial potential must ensure the stability, accessibility, and development of the healthcare system. The financial potential of the healthcare system is the sum of available and possible financial resources, mechanisms for their mobilization, distribution, and effective use, which ensure the fulfillment of healthcare functions, response to challenges, and long-term modernization. This is possible provided all components of the financial potential are considered, including:

− Resource component − covers all elements of financial support. According to national practice, these resources include the state budget, local budgets, National Health Service of Ukraine (NHSU) funds, insurance premiums, private payments, and donor assistance.

− Investment component − encompasses all sources and forms of investment applicable to the development of the system and individual facilities. These include public-private partnership projects for infrastructure modernization and private investment in hospitals functioning as state enterprises with possible private sector participation.

− International component − refers to attracting financial resources from international partners through project grants, loans, or investments.

− Institutional component − refers to the institutional capacity of public administration bodies, the private sector, and stakeholders to ensure financial stability by resolving conflicts of interest.

− Legal component − defines the level of legal provision that allows for rapid response to crisis situations and the expansion of sources for financial potential formation.

− Procedural component − characterizes the instruments of healthcare financing, such as medical guarantees, the state procurement program, facility contracting, and tariff policy.

The sources for forming these components should be defined as: the state budget, local budgets of territorial communities, grants, investments, loans, and international aid. Financial potential is assessed at various levels (state, regional, territorial community, and healthcare facility), and its formation factors include macroeconomic stability, investment climate, tax revenues, trust levels of international partners, facility autonomy, decentralization levels, medical tourism development, and the state of public health.

Undoubtedly, the complexity of financial potential determines its dependence on and influence over state policies such as investment, social, financial, tax, and economic policies.

The most critical part of financial potential for strategic public administration decisions is the adaptive-reserve component: the ability to rapidly redistribute funds during a crisis, the presence and formation of reserve funds, and the existence of mechanisms for emergency financing of medical services.

Infrastructural Potential. We propose to distinguish the following components of the healthcare system's infrastructural potential:

− Network-Subject Component – a component of the healthcare system's infrastructural potential that characterizes the territorial organization of healthcare and, accordingly, the functioning of various medical service providers (hospitals (multi-profile, specialized); outpatient clinics, polyclinics, primary healthcare centers; emergency and specialized care facilities; rehabilitation and palliative centers), considering the uniformity of their placement, transport accessibility, regional specialization, and the provision of medical services to the population in both standard and crisis situations.

− Innovation-Technological Component – a component of the healthcare system's infrastructural potential that characterizes the level of implementation of innovative medical technologies and treatment methods, allowing for the characterization of qualitative indicators such as treatment duration, treatment effectiveness, comfort, and patient satisfaction.

− Engineering-Technical Component – a component of the healthcare system's infrastructural potential that characterizes the equipment level of healthcare facilities and the possibilities for its improvement regarding diagnostic and treatment equipment, laboratory infrastructure, and the condition of buildings and premises.

− Transport-Logistics Component – a component of the healthcare system's infrastructural potential that characterizes the processes of supply, storage, and disposal of medicines, vaccines, blood, oxygen, and other supplies, as well as the ability to transport patients both to the hospital and between hospitals of a territorial community, region, or the state as a whole.

− Information-Digital Component – a component of the healthcare system's infrastructural potential that characterizes the level of digitalization of management processes at various levels of the healthcare system, the implementation of medical services, and the information security of medical market participants.

− Energy Component – a component of the healthcare system's infrastructural potential that characterizes energy supply, water supply, heating, and the healthcare system's capacity to use alternative energy sources, as well as the ability to function autonomously without external energy sources for a certain period.

All the mentioned components of the healthcare system's infrastructural potential should be assessed at all levels (state, regional, territorial community, and healthcare facility). At the same time, the methodology of public administration must take into account regional (natural-climatic, socio-economic, and environmental) characteristics. Undoubtedly, properties of the healthcare system such as safety, adaptability, and efficiency depend on the infrastructural potential at all levels.

An important element of infrastructural potential as an object of public administration is the source of its formation, which is determined by the types of ownership to which healthcare facilities belong (private, municipal, and state). At the same time, maintaining and increasing infrastructural potential is possible through innovative financing instruments for infrastructure development:

− Public-Private Partnership (PPP) – «cooperation between public and private partners, carried out on the basis of a contract and meeting the features of a public-private partnership: 1) the private partner makes investments, namely providing full or partial financing, creation and/or construction (new construction, reconstruction, restoration, capital repair, technical re-equipment) and technical maintenance of the PPP object (except for cases specified by this Law), with or without transfer to the private partner of the right to manage and/or operate the PPP object and/or the right to provide socially significant services; 2) the long-term duration of the PPP term, except for PPP projects for housing construction and PPP projects for housing construction with sub-threshold values, the term of which may be less than five years; 3) the transfer to the private partner of part of the risks associated with the private partner's provision of full or partial financing, creation and/or construction (new construction, reconstruction, restoration, capital repair, technical re-equipment) and technical maintenance and/or management, and/or operation of the PPP object (except for cases specified by this Law), and other risks arising during the implementation of the PPP project» [11]. «Overall, the PPP mechanism in Ukraine is 22 years old. The first law was passed in 2003 and was updated in 2010, 2015, and 2025. According to the Ministry of Economy, as of January 1, 2025, 200 public-private partnership agreements had been concluded in Ukraine, of which 22 were being implemented. Of the rest: 114 are not being fulfilled, 53 were terminated or expired, and 11 were suspended due to the war. In other words, over the 22 years of the mechanism's existence, 22 projects are being implemented (and not yet completed)—effectively one per year—and out of 200 concluded contracts, this represents 12%. Rarely can any region, besides Kyiv, boast more than one PPP project» [7].

− Project-Grant Activity – is characterized as a set of purposeful management measures of an economic, organizational, and informational nature aimed at attracting extra-budgetary resources (grants, donor assistance, international technical assistance, infrastructure projects) and their effective use for development projects, modernization, energy efficiency, and the introduction of innovative technologies to increase the healthcare system's capacity to improve the quality of medical services, the effectiveness of system functioning, and the level of public health.

The aforementioned directions are an important component of forming the financial support for the processes of increasing the infrastructural potential of the healthcare system in the context of energy efficiency, safety, autonomy, and adaptability. These will be considered in greater detail in further research during the development of public administration mechanisms for healthcare system potential.

The level of infrastructural potential is influenced by a set of factors, which we propose to include the following:

− Healthcare Facility Network: Existing approaches to forming the network of state and municipal healthcare facilities are a vital factor determining the level of infrastructure and the need for its expansion or downsizing. An effectively formed network that accounts for the totality of internal and external factors allows for a more substantive approach to managing infrastructural potential and shaping its development according to regional, natural-climatic, environmental, and socio-economic needs.

− Investment Climate: The investment climate should be viewed as a system-forming, key external factor in healthcare infrastructure development. It determines the possibilities for attracting long-term, large-scale, and low-cost financial resources for modernization, restoration, and expansion, ensuring resilience and innovation. A favorable investment climate fosters trust among investors and donors, leading to increased investment in medical infrastructure, which in turn improves the accessibility, quality, and effectiveness of healthcare services. This allows for: a) reduced pressure on the budget; b) accelerated infrastructure recovery after crises; c) an enhanced level of the adaptive-reserve component of infrastructural potential. At the same time, public administration must be directed toward reducing or eliminating risks affecting the investment climate: political-legal, socio-economic, monetary-financial, and security-reputational risks.

− Access to Credit Funds: This factor represents the ability of public administration entities and healthcare facilities to attract borrowed financial resources for infrastructure projects (reconstruction, modern diagnostic equipment, energy-efficient technologies, digitalization, rehabilitation infrastructure), ensuring autonomy and safety. Primary forms include bank lending, targeted state programs, international financial institution loans, and donor credit programs.

− Trust Level of International Partners (Countries, Organizations): A crucial external factor characterized by the confidence of international donors and financial institutions in the national healthcare system's ability to use resources transparently and effectively. This level of trust is determined by: transparency and accountability (budget openness, procurement, auditing); institutional capacity to implement projects; low corruption levels; compliance with international standards (EU and WHO harmonization); political and security stability; and the success of previous projects.

− State Funding: State funding plays a central role through the allocation of budget funds for capital expenditures aimed at expanding, restoring, and modernizing infrastructure objects and improving the material support of medical service providers.

− Level of Decentralization: The degree of decentralization dictates the ability of territorial communities to develop infrastructure, attract private resources, and participate in various regional infrastructure projects.

− Development of Private Medicine: This defines the expansion of the medical service delivery system. Private owners invest in infrastructure and material-technical support, thereby improving the quality and effectiveness of services, which increases patient choice and population satisfaction.

− Development of Medical Tourism: Researcher T.Hushcha notes that «receiving countries benefit from wellness tourism because, beyond economic gains, medical tourists can accelerate the improvement of healthcare infrastructure and service quality. This influx of patients can serve as a catalyst for preventive healthcare initiatives» [5]. Thus, medical tourism both drives and depends on infrastructure, making it a factor that cannot be ignored in public administration decisions.

These factors define the properties of the healthcare system's infrastructural potential as an object of public administration and are themselves objects of administration through direct and indirect methods. Neglecting them could lead to future threats and narrow the development of infrastructural potential. This indicates that the public administration of infrastructural potential combines several state policies:

− Investment Policy − attracting resources for medical infrastructure;

− Social Policy − directing infrastructure development to fulfill social mandates;

− Infrastructural Policy − Defining directions for healthcare and related infrastructure (transport, energy, etc.);

− Energy Policy − modernizing infrastructure for energy independence and alternative energy use;

− Innovation Policy − vital for digitalization and the implementation of innovative treatment and diagnostic methods.

The adaptive-reserve component of the healthcare system's infrastructural potential is defined as: the ability to rapidly redistribute funds during a crisis; the formation and presence of reserve funds; and the existence of mechanisms for the emergency financing of medical services. More detailed public administration mechanisms for this component will be considered in future studies.

6. Concluding remarks

Thus, based on the results of the study, information models of the structural components of the financial, human resource, and infrastructural potentials of the healthcare system as an object of public administration have been developed. These models allow for the determination of its multi-vector, multi-level, and intersystemic nature. The components of these potentials, the levels of their management, sources of formation, and influencing factors have been substantiated. A dependence on various types of state policy has been established, while simultaneously identifying the directions of influence on their formation and implementation. For the first time, a conceptual understanding of the content and components of the adaptive-reserve component of the healthcare system's potential has been proposed as a basis for making strategic public administration decisions.

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