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The Impact of Artificial Intelligence and Digitalization on the Georgian Healthcare Employment Market in 2027-2030

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ABSTRACT

The topic of our research is the employment market in Georgian healthcare with artificial intelligence and digital migration in mind. Artificial intelligence plus machine learning are fields of computer science in which you create systems that learn from data. Artificial intelligence and digital services are widely used in the healthcare sector, from automated daily operations to decision-making. The paper explains how these technologies are changing the employment market. Artificial intelligence and digitalization will drive the development of the healthcare industry. Technology will have a substantial impact on the Georgian medical labor market in 2027-2030. What place will physical actions, talent, and education have in the healthcare sector? Since artificial intelligence/machine learning has penetrated the healthcare industry, jobs are changing, and many will disappear while new ones are created. Healthcare, in particular, has been at the forefront of that technological progress, using AI/machine learning to expand remote healthcare services, medical diagnostics, and hospital systems.

The market for AI skills in healthcare is growing at 6 times the rate of any other sector. However, the introduction of AI/machine learning will require the digitization of work and the displacement of some employees. Today, the largest industry affected by the AI/machine learning revolution is healthcare. Hospitals and clinics are using them to improve their performance. The skills required by employers will change – more data analysis, programming, and analytical reasoning skills.

AI/machine learning will also automate many tasks, making many employees unemployed. Medical AI/Machine Learning Engineers, Data Scientists, and Algorithmic Engineers will replace many fields. To adapt to these changes, employees will need to develop a variety of skills, including technical expertise, creativity, and social intelligence.

The research that was conducted is of two types: expert opinion and literature review. The research indicates that we need to prepare to educate a new type of healthcare professional.

KEYWORDS: health market, employment, artificial intelligence, digital migration

INTRODUCTION

Artificial intelligence (AI) and digitalization are transforming the global economy at an accelerating, unstoppable pace, with major changes expected across all sectors, especially in healthcare. Between 2027 and 2030, digital technologies and the artificial intelligence associated with them are expected to transform medical care systems. But what will this transformation be like, and will it really improve patient care ? If it encourages greater process efficiency, it would completely change the nature of employment in the healthcare sector. In principle, the transformations can occur together and encompass both directions. But it is likely that if artificial intelligence in healthcare encourages the business efficiency of the system itself, and this is done precisely by saving and reducing costs, then healthcare specialists will be partially replaced. Accordingly, we can have 3 hypotheses:

Hypothesis 1: Artificial intelligence is being introduced into healthcare precisely to improve the efficiency of the medical business model; therefore, it will revalue many roles, create new opportunities, and require employees to develop new technical and interpersonal skills.

Hypothesis 2: Artificial intelligence will lead to greater operational efficiency in healthcare and will completely change the nature of employment in the healthcare sector.

Hypothesis 3: Artificial intelligence and digital technologies will result in increased functional efficiency in healthcare, the emergence of new patient needs and the pursuit of their full satisfaction, and this will completely change the nature of employment in the healthcare sector.

To investigate these hypotheses, we use secondary research – which belongs to the descriptive research design, which is expressed in the fact that we will retrieve and analytically read the scientific articles and books that have been published in the last five years, and that can be tracked in the global search engine and international scientific library called Google Scholar.

1. ARTIFICIAL INTELLIGENCE AND DIGITAL TECHNOLOGIES THAT ARE TRANSFORMING HEALTH CARE SYSTEMS

Many scientific articles suggest that healthcare is entering the fourth industrial revolution. Unlike previous technological changes that primarily improved medical equipment or hospital infrastructure, artificial intelligence is fundamentally changing how healthcare knowledge is created, interpreted, and used (Jiang et al., 2017).

Healthcare today faces exceptional challenges: These include an aging population, epidemics of chronic diseases, a shortage of doctors and nurses, rising healthcare costs, and administrative complexity (Gigauri & Djakeli,2021),workforce burnout and the growing demand to move from mass medicine to individualized medicine (Shaheen, 2021).

In this regard, the information revolution (Koski & Murphy, 2021), which has created new tools, has great potential to confront these challenges. But like any new innovation, it probably also carries some risks, and artificial intelligence and digital technologies are addressing most of these problems, solving problems, and boosting healthcare.

- Automating regular work,
- Improving clinical decision-making,
- Increasing productivity,

- Expanding access to patients and their segments through digital technologies (Polevikov, 2023).

The central question of our research is: How will artificial intelligence and digital technologies change the healthcare employment market, from 2027 to 2030? Our question will also be: How will artificial intelligence and digital technologies change the local healthcare employment market in Georgia from 2027 to 2030 (Panch et al., 2019)?

When we read different scientific books and articles, we identify the main themes that most publications address. These themes are:

- Artificial intelligence-powered medical diagnostics, guided by a professional doctor, and supported by the extension of this topic (Al Kuwaiti et al., 2023).
- Clinical decision support systems, which are now being rapidly developed, can also be referred to as expert systems (Saraswat et al., 2022).
- Next are artificial intelligence systems for clinical documentation generation and medical record storage and usage, which play a major role in consistent medical diagnostics (Zeb et al., 2024).
- Telemedicine and virtual care are developing very rapidly (Chinta et al., 2025)
- Process automation (Talati,2023).
- Digital therapy (Bouderhem,2024).
- Precision medicine
- Workforce Transformation
- Human-AI cooperation
- Ethics and Governance of Artificial Intelligence

The literature also shows that artificial intelligence is identifying new unmet needs in the medical market, and this topic, which falls under healthcare marketing, will be supported by strong interest from investment funds and the stock market in paid acquisitions of healthcare technology companies (Bouderhem, 2024). The literature review shows that the implementation of technology depends on regulation, compensation, interaction, workforce recruitment, and organizational readiness (Väänänen et al., 2021).

What changes will artificial intelligence and digitalization bring to healthcare employment?

1.1. The primary changes will be in healthcare administration (Morley et al., 2021)

Of course, one of the most notable impacts of AI in healthcare will be the automation of routine administrative tasks. Technologies such as intelligent appointment systems, electronic health record management, automated medical billing, and AI-based virtual assistants will reduce the time healthcare professionals spend on documentation. As a result, doctors, nurses, and other healthcare workers will be able to spend more time caring for patients (Sun & Zhou, 2023).

Of course, healthcare organizations manage large streams of information every day, including patient records, financial transactions, insurance claims, workforce schedules, purchasing data, quality indicators, and regulatory reports (Li, F., Ruijs, N., & Lu, 2022). Artificial intelligence systems can analyze these datasets in seconds, discover patterns invisible to humans, predict future events, and automate repetitive administrative processes. Innovative AI applications are already helping healthcare companies with the following administrative activities (Steerling et al., 2023):

- Automated visit planning (Ejjami, 2024).
- Revenue cycle management
- Payment and coding automation
- Electronic Health Record (EHR) Optimization
- Workforce planning
- Inventory management
- Supply chain enhancement
- Predictive financial modeling
- Patient flow optimization
- Forecasting hospital capacity
- Monitoring conformance with regulatory norms
- Clinical documentation management
- Population health analytics (Nasir et al., 2024)
- Health risk research and hazard prediction
- Support for strategic planning (Amann et al., 2020).

These technologies significantly reduce administrative workloads while improving organizational efficiency (Amann et al., 2020). These changes, according to scholars, will lead to a reduction in certain administrative positions in healthcare. However, this change will inevitably lead to a new demand – an increase in the demand for professionals who can manage and maintain digital medical systems (Ejjami, 2024).

Which administration will be more in demand in healthcare? Healthcare administrators are expected to increasingly focus on issues such as: strategic leadership, organizational transformation, artificial intelligence leadership, algorithm management, innovation management, digital transformation of healthcare, ethical supervision, cybersecurity management, human resource leadership (Bekbolatova et al., 2024) change management, crisis management, patient experience improvement, healthcare policy implementation, digital quality improvement, value-based healthcare management, population health strategy. Therefore, we can say that, instead of performing administrative work, future healthcare administrators will oversee intelligent systems that will handle much of the operational work (Muley et al., 2023).

As the literature analysis shows, the future competencies of a healthcare administrator should include: a) Artificial Intelligence literacy, b) Data analytics, and c) Machine learning fundamentals (Shaheen, 2021), d) Predictive analytics, e) Digital transformation management

f) Cybersecurity g) Cloud computing concepts h) Health informatics i) Ethics of artificial intelligence j) Data governance l) Digital leadership and so on (Bekbolatova et al., 2024, January).

1.2. Artificial Intelligence and Clinical Decision Making

AI-assisted diagnostics involves the use of artificial intelligence technologies, including machine learning, deep learning, and natural language processing (NLP), to analyze medical information such as imaging studies, laboratory results, electronic health records (EHRs), genetic data, and patient histories. These systems observe patterns, assess probabilities, and provide diagnostic recommendations to improve the speed, accuracy, and consistency of clinical decision-making (Alowais et al., 2023).

Artificial intelligence will improve clinical decision-making. Machine learning algorithms can

analyze large volumes of medical data, identify disease patterns, and help healthcare professionals diagnose diseases more quickly and accurately. AI-driven imaging tools, predictive analytics, and customized treatment recommendations will become increasingly common. However, human expertise will remain essential, as healthcare professionals must interpret AI-generated recommendations, consider ethical issues, and make final clinical decisions based on the patient's individual needs (Zeb et al., 2024).

But we should not forget that AI-assisted diagnostics have severe limitations (Al-Antari, 2023). If we do not pay attention to these limitations, the accuracy of the diagnosis itself may be at risk. What limitations should we respond to appropriately? These are:

- In healthcare data quality, we must remember that artificial intelligence systems are only as reliable as the data on which they make diagnoses (Kulkarni & Singh, 2023).
- Algorithmic Bias what seems to be the same as some Algorithmic Discrimination: an important topic, refers to systematic mistakes in the design, training, or operation of artificial intelligence algorithms that produce unfair or inaccurate results for specific groups of people. These errors typically arise because artificial intelligence systems learn from historical data. If this data contains current inequalities, omissions, or distortions, artificial intelligence can reproduce or even amplify them.

We distinguish between a) the consistency of the information being studied, and b) historical bias; b) Measurability bias; c) Selection bias; d) Labeling bias.

For example, a) an AI system developed using medical images of predominantly middle-aged European patients may have lower diagnostic performance when assessing patients from East Asia, say China, Central Africa, say the Democratic Republic of the Congo, or Latin America, say Argentina, because their clinical characteristics may differ (Norori et al., 2021).

But here comes another issue, called Historical Algorithmic Bias. Medical systems have historically been characterized by inequities in access to care, diagnosis, and treatment. AI trained using historical medical records may unintentionally learn from these existing patterns. For example, if women have historically been underdiagnosed with cardiovascular disease because their symptoms often differ from those of men, AI trained on these records may continue to underestimate women's risk of heart disease (Ueda et al., 2024).

If the training data does not adequately represent varied populations, diagnostic performance may vary across demographic groups. There may be a lack of clinical context. Artificial intelligence may not fully account for factors such as the fact that some advanced AI models operate as "black boxes," making it difficult to understand how a particular recommendation was reached (Durán & Jongsma, 2021).

A good example is Algorithmic Bias in skin cancer assessment – many artificial intelligence systems for detecting skin cancer are trained primarily on images of light-skinned people. As a result, these systems commonly perform better at assessing patients with light skin than those with dark skin. This can cause delayed diagnosis of melanoma in people with dark skin, increasing the risk of advanced disease and poorer outcomes (Nuis, Uren & Jariwala, 2025).

How should the issue of algorithmic prejudice be addressed in clinical practice?

1.3. The black box dilemma is one of the central issues of modern biomedical ethics, as traditional clinical decision-making necessitates clear cause-and-effect reasoning, whereas deep learning models make decisions based on complex, multi-layered parameter structures. One of the main ways to overcome this contradiction is the

development of explainable artificial intelligence, which not only makes predictions as well as provides traceability of the decision-making logic and a clinically interpretable explanation, including the identification of data and features that influenced a particular outcome (Panahi, 2025).

To reduce Algorithm Bias, it is necessary to decentralize data collection and model training. In this context, federated learning is an effective approach in which the algorithm learns from data among different clinical settings without private data leaving the local system. This method helps to create increasingly inclusive and demographically balanced models that better reflect global diversity and reduce the risk of reproducing historical institutional inequalities in the digital space (Arora et al.,2023).

The digitalization of healthcare will expand remote healthcare services. Telemedicine, remote patient monitoring, wearable health devices, and mobile health apps will allow care providers to monitor patients outside of traditional clinical settings. This trend could create new employment opportunities in virtual medical service delivery, while giving healthcare professionals more flexibility in where and how they work. At the same time, rural and underserved communities can gain improved entry to healthcare services using online platforms (Agarwal et al., 2023).

At the same time, AI and digitization in healthcare pose major challenges for the healthcare workforce. Many employees may need extensive retraining to adjust to rapidly changing technologies. Healthcare organizations will need to allocate to continuous professional development to ensure that staff can effectively use AI-based tools and digital systems. Healthcare workers, including doctors and nurses, who lack digital skills will need significant retraining to manage the new digital healthcare marketplace (George et al., 2024).

A very important challenge will be the intersection of AI and ethics in healthcare. Ethical and lawful considerations will also impact healthcare employment. Protecting patient privacy, guaranteeing data security, reducing algorithmic discrimination, and preserving transparency in AI-powered decision-making will require specialized professionals and clear governing structures.

Furthermore, the growing importance of soft skills in patient care should not be underestimated. While artificial intelligence can process information effectively, it cannot replace feelings, empathy, communication, and affective intelligence. Patients often need reassurance, trust, and personal support during treatment. Therefore, healthcare professionals who combine strong technical competencies with excellent interpersonal skills will continue to be indispensable.

2. NEEDED TRANSFORMATION IN HEALTH EDUCATION

The global healthcare industry is entering one of the most transformative periods in its history. Between 2027 and 2030, artificial intelligence (AI), machine learning, robotics, digital health technologies, and automation are expected to transform the way healthcare services are delivered, managed, and financed. Unlike previous technological revolutions, AI can perform not only repetitive administrative tasks but also increasingly sophisticated mental functions, such as interpreting medical images, summarizing clinical records, supporting diagnoses, predicting disease risk, and assisting with treatment planning. Demand will increase for healthcare data analysts, clinical informatics specialists, AI implementation managers, cy-

bersecurity experts, digital health consultants, and telemedicine coordinators. Professionals with expertise in both healthcare and information technology will be particularly valuable as healthcare organizations continue to integrate advanced digital solutions into their daily practices (Sopromadze et al., 2025).

As the Human-artificial intelligence collaboration, automation management, and innovation management is going the need for new skills are high. Healthcare administration education will undergo substantial development in the future. Accordingly, future master's programs should include courses such as:

- Artificial intelligence in healthcare
- Healthcare analytics
- Machine learning for healthcare managers
- Digital Hospital Management
- Ethics of Artificial Intelligence in Healthcare
- Health Informatics
- Healthcare predictive analytics
- Healthcare automation
- Digital Leadership in Healthcare
- Healthcare cybersecurity
- Healthcare Big Data Management

Innovation Management. Accordingly, graduates lacking digital competencies may face increasing difficulties in occupying leadership positions.

Looking toward to 2027–2030, health education will also evolve. Universities and educational institutions are expected to incorporate AI literacy, digital health technologies, data analytics, cybersecurity, and cross-disciplinary collaboration into medical and nursing curricula. Lifelong learning will become an essential aspect of healthcare careers as technological innovations accelerate healthcare development (Srivastava, 2024).

2.1. Healthcare professions that are likely to be transformed – The first professions to experience significant automation will generally be those that involve repetitive processing of information instead of direct patient care:

- Medical transcriptionists. Medical transcription is expected to become almost completely automated. Advanced speech recognition and generative artificial intelligence systems can already produce highly accurate clinical documentation in real time, decreasing the need for manual transcription (Knopp et al., 2023).
- Medical coding specialists and billing specialists. Artificial intelligence systems are increasingly capable of automatically assigning diagnostic and procedural codes from electronic health records, identifying billing errors, and detecting fraudulent claims. Human professionals will increasingly monitor, audit, and manage exceptions instead of routine coding.
- Medical scribes , digital assistants integrated into consulting rooms, can automatically record doctor-patient conversations, create structured clinical notes, and prepare documentation for physician review. Accordingly, the demand for traditional medical scribes is expected to decline (Pang et al., 2023).
- Administrative staff are increasingly handling visit scheduling, insurance verification,

patient registration, referral management, customer service, and routine communication through intelligent virtual assistants and conversational AI. Administrative staff is increasingly administering complex cases that require human decision-making rather than routine transactions.

- Call center operators.

Healthcare call centers are rapidly adopting artificial intelligence-based chatbots plus virtual agents to answer frequently asked patient questions, schedule appointments, provide medication reminders, and refer patients to appropriate services.

- Clinical professions are undergoing significant changes. Although AI will impact nearly every clinical profession, complete replacement is unlikely by 2030. The embedding of AI into surgical robotics involves moving beyond mechanical assistance to cognitive augmentation, in which the system functions as an intelligent partner to the surgeon. Computer vision algorithms examine visual data of the surgical field in real time and integrate preoperative images with the intraoperative environment, allowing the surgeon to better visualize critical anatomical structures, including blood vessels, nerves, and the limits of pathological tissue. This substantially lowers the risk of iatrogenic injury and increases the accuracy of surgical procedures.
- The operation of this system is based on multiple technological mechanisms; among them are predictive kinematics, which analyzes the surgeon's movements, eliminates hand tremors, and optimizes instrument trajectories. Also important is the automatic recognition of operational phases, through which the system determines the stage of the operation and adjusts technical parameters accordingly. In addition, the mechanism for instant anomaly detection ensures immediate identification of potential complications — including atypical bleeding or anatomical deviations — and notification of the surgical team.
- Radiologists – Radiology is one of the specialties most impacted by AI. AI systems are already detecting fractures, lung nodules, breast lesions, retinal abnormalities, and many other imaging data with impressive accuracy. However, radiologists will increasingly control AI systems, integrate imaging data with clinical information, communicate with clinicians, and perform complex, imaging-guided procedures (Obuchowicz et al., 2025).
- The rapid combination of artificial intelligence and digital innovations is driving unprecedented changes in medicine, fundamentally transforming both clinical diagnostics and the medical system. As medical systems transition from traditional, reactive models to predictive, data-driven, and patient-focused ecosystems, the development of strategic planning plus ethical models becomes critically important.

The most significant change AI has brought to healthcare is the transformation of medical decision-making. Traditionally, medicine has been largely based on clinicians' experience, intuition, and a symptom-oriented approach, while modern AI systems enable the integrated analysis of diverse biological, genetic, clinical, and behavioral data to predict diseases, identify risks at an early stage, and plan customized interventions. This process has greatly contributed to the development of predictive, preventive, personalized, and patient-centered medicine, which focuses not only on treating an already developed disease but also on preventing and early detecting it. This change is transforming not only clinical practice but also the entire organizational, governance, and strategic structure of the healthcare system.

Today, the most rapid and large-scale transformation is taking place in clinical diagnostics and medical imaging. Deep learning algorithms are successfully used in radiology, ophthalmology, dermatology, and pathological diagnostics, where they can identify complex patterns and features that often go unnoticed by human visual assessment. In parallel, significant progress is being made in pharmacogenomics and the development of new drugs, with artificial intelligence reducing research and drug development timelines, increasing research efficiency, and accelerating the identification of potential therapeutic targets. No less important are the automation of administrative processes, intelligent analysis of electronic medical records, and optimization of clinical documentation. These technological solutions contribute to increasing organizational efficiency, improving workflows, and a more rational allocation of healthcare resources. As a result, artificial intelligence is gradually emerging not only as a technological tool but also as one of the most important driving forces in the structural, functional, and organizational transformation of the healthcare system, affecting both the quality of medical services and the system's efficiency and long-term sustainability.

Artificial intelligence has significant potential to reduce geographical and social inequalities and increase access to healthcare services. Modern digital platforms, telemedicine, and clinical decision support systems allow medical personnel in rural and mountainous regions to quickly access specialized knowledge and expert recommendations, privileges previously reserved for large urban medical centers. Thus, the quality of diagnostics and treatment becomes less dependent on the patient's place of residence, and the availability of high-quality medical services in the regions increases. This innovation is especially important for countries where the uneven distribution of specialists and infrastructural limitations pose significant challenges.

However, AI cannot automatically ensure equality and, under certain circumstances, may even exacerbate existing inequalities. One reason for this is algorithmic bias, which arises when models are trained on limited or insufficiently diverse data. If AI systems are based primarily on data from high-income urban populations, their effectiveness may be reduced in other demographic or geographic groups. In addition, technological, digital, and financial barriers may limit low-income populations' access to innovative technologies. At the same time, these barriers may also create constraints for the public sector in terms of implementing and effectively using modern technologies. Therefore, the successful integration of AI requires implementing inclusive policies that ensure data diversity and the equitable development of digital infrastructure.

When considering the relationship between artificial intelligence and medical personnel, it is important to consider that medicine is not just about data analysis. Clinical practice is based not only on scientific evidence but also on the assessment of the individual patient’s condition, ethical decisions, communication and empathy. That is why the most realistic and effective model is a collaboration between humans and artificial intelligence, in which technology plays a supporting and enhancing role, and the final decision remains the clinician's responsibility. Artificial intelligence is particularly effective at processing large volumes of data, assessing risks, discovering diagnostic patterns, and automating administrative processes, while the doctor provides clinical judgment, understands the context, and interacts with the patient.

Transparency, accountability, and explainable AI should underpin this collaboration . The physician should be able to understand the data and logic behind the algorithm’s conclusions and recommendations. Trust in innovation will only be sustainable if its principles are understandable and verifiable. Accordingly, the future of healthcare should not be about replacing the physician but rather about empowering the physician to improve both clinical outcomes and the patient experience (Djakeli, 2025).

The current international regulatory environment only partially addresses the challenges posed by the rapid development of artificial intelligence. Traditional regulatory mechanisms were originally designed to assess medical devices and pharmaceutical products, whereas modern artificial intelligence systems are often dynamic, continually updating their functionality in response to new data. This circumstance significantly complicates the regulatory process, as it is necessary not only to evaluate the product initially but also to continuously monitor it in real-world clinical practice. That is why existing legal frameworks often fail to keep pace with technological progress.

ATTEMPTS TO REGULATE ARTIFICIAL INTELLIGENCE

What is the Artificial Intelligence Act? The Artificial Intelligence Act (AI Act) is a comprehensive legal regulation created by the European Union to establish common rules for the development, deployment, marketing, and use of artificial intelligence systems in the European Union. The main objectives of this regulation are to protect human rights and ensure the safety and reliability of artificial intelligence systems, promote transparency, prevent discrimination, and encourage trustworthy innovations in artificial intelligence (Gilbert et al., 2023).

Increasing public trust in AI technologies. Creating harmonized rules across all EU member states. The law applies not only to organizations located in the EU but also to companies outside the EU that place AI systems on the EU market or whose AI systems affect individuals within the EU (Sun & Zhou, 2023).

The European Union has enacted the world's first large-scale law, the "AI Act" (Artificial Intelligence Act, 2024).

It aims to ensure a balance between technological progress and the protection of human rights. The regulation is based on a risk-based approach and pays special attention to security, transparency, and the protection of fundamental human rights (Reddy et al.,2020).

This direction is not shared by the United States. The United States prefers a more flexible and innovation-oriented approach. Nevertheless, most countries still lack a comprehensive strategy that would simultaneously ensure support for innovation and patient safety. In the future, it will be necessary to develop adaptive governance models that keep pace with technological change and ensure the safe use of artificial intelligence systems in healthcare practice (Madiega, 2021, April).

The introduction of a digital model in developing economies is not only realistic but, under conditions of limited resources, also one of the most optimal ways forward. The effect of technological leapfrogging in the healthcare system enables the partial elimination of traditional, capital-intensive infrastructure stages and the direct integration of the system into modern digital ecosystems (Djakeli, 2024). developed to the expansion of physical infrastructure, are often much more scalable and cost-effective (Schuett, 2024).

Today, in the Georgian context, the practical implementation of the digital model does not imply the construction of comprehensive high-tech centers, but rather the hybridization of the existing primary healthcare infrastructure. The physical space retains the functions of direct patient contact and the collection of clinical biomaterial, while diagnostic analytics, remote monitoring, and artificial intelligence-based decision support are implemented in a digital environment. The development of digital infrastructure, including broadband Internet and cloud

systems, is critical to the effectiveness of this model, which already lays the foundation for the large-scale implementation of such an ecosystem (Novelli, 2025).

The Georgian healthcare system is currently at an early, albeit structurally fragmented stage, with digital elements such as electronic prescriptions and outpatient records already in place, but full semantic interoperability of data between different healthcare providers is not yet ensured. In these circumstances, one of the most important opportunities is the ongoing centralization of data within the diagnosis-related groups, or DRG, system, which creates large-scale and structured databases. Such databases are an important resource for machine learning algorithms and contribute to resource optimization, the modeling of epidemiological processes, and the predictive management of healthcare financing (Giguashvili et al., 2023).

In addition, one of the most critical risks remains the insufficient information security architecture and the lack of a clear ethical and legal framework. Given the special sensitivity of medical data, the potential leakage or unauthorized manipulation of systems poses a direct threat to patients' safety and health (Vepkhishvili et al., 2025). An additional challenge is the insufficient level of digital competence among clinical staff, which often leads to skepticism towards new technologies and to their perception as an additional administrative burden rather than as tools supporting clinical processes (Gognadze, 2025).

Over the next 10–15 years, the global healthcare system will gradually transition to a decentralized, patient-centric digital ecosystem, where the traditional hospital-centric model will be significantly reduced. Hospitals will mainly retain high-complexity surgical, intensive care and emergency intervention services, while the management and prevention of chronic diseases will increasingly move to the patient's home and everyday environment. In this process, biosensors and artificial intelligence-based wearable devices will provide continuous health monitoring (Kutalia et al., 2025)

In parallel with this transformation, one of the main ethical challenges remains the risk of data concentration and so-called "data colonialism", when global technology companies may control the biological data of the population, while developing countries remain passive users of technological services (Djakeli, 2026). The issue of digital health inequalities is also critical, as a lack of access to high technologies may become a new socio-economic risk factor that will directly affect health outcomes and deepen existing global inequalities. (Giguashvili & Makasarashvili, 2021).

THE RESULT OF SECONDARY RESEARCH: DEMONSTRATION OF CONFIRMATION OR REJECTION OF HYPOTHESES THROUGH RESEARCH

During the secondary research, scientific articles and books published in recent years were analyzed, and the following were identified:

Hypothesis 1: Artificial intelligence will enter healthcare precisely to improve the efficiency of the medical business model, and therefore it will revalue many roles, create new opportunities, and require employees to develop new technical and interpersonal skills. This hypothesis was confirmed by the conducted research.

Hypothesis 2: Artificial intelligence will lead to increased operational efficiency in healthcare and will completely change the nature of employment in the healthcare sector. The second hypothesis was confirmed by the literature analysis.

Hypothesis 3: Artificial intelligence and digital technologies will lead to increased healthcare functional efficiency, the emergence of new patient needs, and the pursuit of their full satisfaction, and this will completely change the nature of employment in the healthcare sector. The third hypothesis was confirmed by the literature review.

CONCLUSION

The main strategic message for healthcare policymakers is that the digital transformation of healthcare should not be based on implementing isolated technological products, but on developing a systematic data architecture that ensures information standardization, semantic interoperability, and secure data exchange. The effectiveness of artificial intelligence depends directly on the quality, structure, and availability of data; therefore, implementing innovative technologies in a fragmented data environment will not yield sustainable results and may lead to inefficient use of resources (Voronovi et al., 2024).

In addition, it is necessary to create flexible yet clear ethical and legal frameworks that simultaneously protect patient confidentiality and do not hinder scientific innovation. Of particular importance is the development of human capital, including reforms to medical education that strengthen data analytics and digital literacy. Ultimately, artificial intelligence cannot replace the ethical responsibility and empathy of the clinician, but those systems and professionals that effectively absorb its capabilities will significantly outperform those environments that are slow or incompletely adapting to technological transformation (Djakeli,2023).

In conclusion, artificial intelligence and digitalization will significantly change the healthcare job market between 2027 and 2030. While automation may reduce demand for some traditional administrative roles, it will create many opportunities in digital health, data science, cybersecurity, and AI systems management. Healthcare professionals will increasingly work alongside intelligent technologies rather than competing with them.

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