

IV BÖLMƏ: RƏQƏMSAL İQTİSADİYYAT VƏ SÜNİ İNTELLEKT

**AZƏRBAYCANDA SÜNİ İNTELLEKTƏ ƏSASLANAN İQTİSADI
İSLAHATLARDAN İRƏLİ GƏLƏN YENİ ÇAĞIRIŞLAR VƏ İMKANLAR**

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Xülasə:

Süni intellektin (Sİ) və rəqəmsal texnologiyaların sürətli inkişafı qlobal iqtisadiyyatları əsaslı şəkildə dəyişdirir və ölkələri rəqabət qabiliyyətini artırmaq, iqtisadi səmərəliliyi yüksəltmək və dayanıqlı inkişafı təmin etmək məqsədilə islahat strategiyalarını yenidən nəzərdən keçirməyə vadar edir. Enerji resurslarından, xüsusilə karbohidrogen gəlirlərindən asılı olan Azərbaycan üçün iqtisadiyyatın şaxələndirilməsi enerji qiymətlərinin dəyişkənliyi, qlobal geosiyasi gərginliklər və iqlim dəyişikliyi fonunda daha da aktuallaşır. Sİ texnologiyaları sənaye proseslərinin optimallaşdırılması, resursların daha səmərəli idarə olunması, maliyyə və fiskal xidmətlərin təkmilləşdirilməsi, təhsil və insan kapitalının inkişafı baxımından mühüm imkanlar yaradır.

Bu məqalədə süni intellektə əsaslanan iqtisadi və sosial islahatların üstünlükləri, həmçinin mümkün riskləri beynəlxalq və yerli tədqiqat kontekstində təhlil edilir. Sİ texnologiyaları sənaye və kənd təsərrüfatında məhsuldarlığı artırmaq, enerji və resurs istifadəsini optimallaşdırmaq, maliyyə xidmətlərini daha inklüziv etmək, idarəetməni təkmilləşdirmək və innovativ biznes mühitini dəstəkləmək üçün geniş imkanlar təqdim edir. Eyni zamanda, avtomatlaşdırma və rəqəmsal transformasiya işçi bazarında dəyişikliklərə səbəb ola bilər, buna görə də bacarıqların yenidən qurulması, peşə hazırlığı və insan kapitalının inkişafı prioritet olmalıdır.

Məqalədə siyasətçilər və tənzimləyicilər üçün infrastrukturun modernləşdirilməsi, etik və hüquqi çərçivələrin gücləndirilməsi, sosial ədalətin təmin edilməsi və iqtisadi dayanıqlığın artırılması ilə bağlı tövsiyələr verilir. Aparılan təhlillər göstərir ki, Sİ-nin effektiv tətbiqi Azərbaycanın neftdən asılı iqtisadi modelini bilik və texnologiya yönümlü, rəqabətqabiliyyətli və dayanıqlı iqtisadi sistemə çevirməyə imkan verir. Eyni zamanda, Sİ texnologiyaları regional əməkdaşlıq, beynəlxalq investisiyalar və innovativ startapların inkişafı üçün əlverişli şərait yaradır. Məqalə süni intellektin inteqrasiyasının ölkənin iqtisadi diversifikasiyası, sosial ədalət və texnoloji müstəqilliyinə töhfəsini vurğulayır.

Açar sözlər: Süni intellekt, iqtisadi islahatlar, Azərbaycan, şaxələndirmə, idarəetmə, insan kapitalı, innovasiya

NEW CHALLENGES AND OPPORTUNITIES ARISING FROM AI-DRIVEN ECONOMIC REFORMS IN AZERBAIJAN

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Abstract:

The rapid development of Artificial Intelligence (AI) and digital technologies is profoundly transforming global economies, compelling countries to reconsider their reform strategies in order to enhance competitiveness, increase economic efficiency, and ensure sustainable development. For Azerbaijan, whose economy largely depends on energy resources, particularly hydrocarbon revenues, economic diversification has become even more crucial amid fluctuating energy prices, global geopolitical tensions, and climate change. AI technologies create significant opportunities for optimizing industrial processes, improving resource management, enhancing financial and fiscal services, and advancing education and human capital development.

This article analyzes the advantages and potential risks of AI-based economic and social reforms within both international and local research contexts. AI technologies provide extensive opportunities to boost productivity in industry and agriculture, optimize energy and resource use, make financial services more inclusive, improve governance, and foster an innovative business environment. At the same time, automation and digital transformation may cause shifts in the labor market; therefore, reskilling, vocational training, and the development of human capital should be prioritized.

The article offers recommendations for policymakers and regulators concerning infrastructure modernization, the strengthening of ethical and legal frameworks, ensuring social justice, and enhancing economic resilience. The conducted analysis shows that the effective implementation of AI can transform Azerbaijan's oil-dependent economic model into a knowledge- and technology-driven, competitive, and sustainable economic system. At the same time, AI technologies create favorable conditions for regional cooperation, international investment, and the development of innovative startups. The article emphasizes the contribution of AI integration to the country's economic diversification, social justice, and technological independence.

Keywords: *Artificial intelligence, economic reforms, Azerbaijan, diversification, governance, human capital, innovation*

НОВЫЕ ВЫЗОВЫ И ВОЗМОЖНОСТИ, ВОЗНИКАЮЩИЕ В РЕЗУЛЬТАТЕ ЭКОНОМИЧЕСКИХ РЕФОРМ, ОСНОВАННЫХ НА ИСКУССТВЕННОМ ИНТЕЛЛЕКТЕ В АЗЕРБАЙДЖАНЕ

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Аннотация:

Быстрое развитие искусственного интеллекта (ИИ) и цифровых технологий радикально изменяет мировую экономику, побуждая страны пересматривать стратегии реформ для повышения конкурентоспособности, экономической эффективности и обеспечения устойчивого развития. Для Азербайджана, экономика которого в значительной степени зависит от энергетических ресурсов, особенно от доходов от углеводородов, диверсификация экономики становится ещё более актуальной на фоне колебаний цен на энергоносители, глобальных геополитических напряжённостей и изменения климата. Технологии ИИ создают важные возможности для оптимизации промышленных процессов, более эффективного управления ресурсами, совершенствования финансовых и фискальных услуг, а также развития образования и человеческого капитала.

В статье анализируются преимущества и возможные риски экономических и социальных реформ, основанных на применении ИИ, в контексте международных и отечественных исследований. Технологии ИИ предоставляют широкие возможности для повышения производительности в промышленности и сельском хозяйстве, оптимизации использования энергии и ресурсов, повышения инклюзивности финансовых услуг, совершенствования управления и поддержки инновационной предпринимательской среды. В то же время автоматизация и цифровая трансформация могут привести к изменениям на рынке труда, поэтому переподготовка кадров, профессиональное обучение и развитие человеческого капитала должны стать приоритетом.

В статье даются рекомендации для политиков и регулирующих органов по вопросам модернизации инфраструктуры, укрепления этических и правовых рамок, обеспечения социальной справедливости и повышения экономической устойчивости. Проведённый анализ показывает, что эффективное внедрение ИИ может преобразовать экономическую модель Азербайджана, зависящую от нефти, в основанную на знаниях и технологиях, конкурентоспособную и устойчивую систему. Одновременно технологии ИИ создают благоприятные условия для регионального сотрудничества, привлечения международных инвестиций и развития инновационных стартапов. В статье подчёркивается вклад интеграции ИИ в экономическую диверсификацию, социальную справедливость и технологическую независимость страны.

Ключевые слова: искусственный интеллект, экономические реформы, Азербайджан, диверсификация, управление, человеческий капитал, инновации

INTRODUCTION

The global economy is undergoing a profound transformation driven by the swift progress in artificial intelligence (AI), machine learning, and digital technologies (Schwab, 2017). This shift is marked by increasing automation, data-driven decision-making, and the integration of "smart systems" across various sectors, leading to higher productivity and the emergence of new business models. Countries that adapt flexibly to these changes achieve greater competitiveness and sustainable development opportunities (Sachs, 2015).

For Azerbaijan, the need for economic diversification is evident, given its heavy dependence on hydrocarbon revenues. Global demand for oil remains unstable, with sharp fluctuations in energy prices, compounded by international geopolitical tensions and climate change challenges (Mammadov, 2025). The traditional economic structure, primarily based on oil and gas exports, is insufficient for long-term stability. In this context, AI technologies can be viewed as a key opportunity to accelerate Azerbaijan's industrial and technological development stages (Trajtenberg, 2018).

AI technologies enable the optimization of industrial processes (through predictive maintenance and more efficient resource allocation), improve governance efficiency (via automated administrative mechanisms and enhanced policy analysis), make financial services more accessible and inclusive (thanks to personalized banking and fintech solutions), and strengthen financial systems (with advanced forecasting and fraud detection methods) (Goldfarb, 2018). Additionally, AI supports education development, promotes innovative entrepreneurship (by reducing market entry barriers for startups), and leverages Azerbaijan's geostrategic position to become a regional digital hub.

This article examines the significance of AI-based reforms, drawing on approaches from international and local researchers, and presents a multi-stage roadmap to ensure their realistic, ethical, and inclusive implementation (Mammadov, 2025).

A pivotal event in this context is the approval of the "Artificial Intelligence Strategy of the Republic of Azerbaijan for 2025–2028" by President Ilham Aliyev in March 2025 (Aliyev, 2025). This strategy demonstrates the state's commitment to utilizing AI for national development goals. Its main objectives include accelerating AI development, supporting scientific research, improving information infrastructure, and forming an innovative, secure, and inclusive AI ecosystem. Priorities encompass enhancing economic competitiveness, creating a favorable environment for AI adoption, advancing education and research, strengthening the legal framework, promoting public-private partnerships, and raising public awareness (Digital Watch Observatory, 2025). The strategy also focuses on ethical AI applications, shared infrastructure creation, and international cooperation, aiming to solidify Azerbaijan's position in the global digital economy.

The Artificial Intelligence Strategy of the Republic of Azerbaijan for 2025–2028

Approved by President Ilham Aliyev in March 2025, the "Artificial Intelligence Strategy of the Republic of Azerbaijan for 2025–2028" serves as a comprehensive roadmap for integrating AI into the national economy and society (Aliyev, 2025). The strategy targets the rapid adoption of AI technologies, the advancement of scientific research in the field, the enhancement of information and communication infrastructure, and the creation of a conducive environment for innovation.

Key pillars of the strategy include:

Education and human capital development: Introducing AI subjects in schools and higher education institutions to build a skilled workforce for the future.

Scientific research and innovation: Increasing funding for AI projects, establishing specialized centers, and defining strategic research directions.

Legal and regulatory framework: Developing a legal base to ensure ethical implementation, data privacy, and intellectual property protection.

Public-private partnerships: Facilitating knowledge and experience exchange between the state and private sectors, and creating conditions for joint projects.

Public awareness: Conducting campaigns to help society better understand AI technologies (Innovation and Digital Development Agency, 2025).

Implementation involves detailed action plans. For instance, the Azerbaijan National Academy of Sciences (ANAS) has approved plans to promote AI research, develop digital infrastructure, and apply AI across various scientific fields (Azerbaijan National Academy of Sciences, 2025). Additionally, work is underway to adopt national standards for AI implementation, ensuring compatibility, security, and alignment with international best practices (Ministry of Digital Development and Transport, 2025).

Experts view this strategy as a forward-thinking approach that aligns Azerbaijan's development goals with the Fourth Industrial Revolution. Prioritizing ethical and inclusive AI helps minimize potential risks—such as job losses and deepening social inequalities—while fostering productivity growth and new economic opportunities.

The document not only reflects political will and resource allocation but also signals to international partners Azerbaijan's serious intent to become a regional AI leader. This could attract foreign investments and collaborations. However, successful execution will depend on effective monitoring mechanisms, adaptive policies, and ongoing stakeholder involvement.

Azerbaijan's AI Readiness in a Regional Context

To assess Azerbaijan's progress in AI adoption, it's useful to compare it with regional neighbors using the 2024 Government AI Readiness Index prepared by Oxford Insights (Oxford Insights, 2024).

This index evaluates countries' readiness to implement AI in public services across three main pillars:

- Government,
- Technology Sector,
- Data & Infrastructure.

The following table presents results for Azerbaijan and selected regional countries:

Table 1. Comparative statistics on AI readiness in a regional framework

Sıra	countries	Global Rank	Overall Score	Government	Technology Sector	Data & Infrastructure
1	Azerbaijan	111	39.92	35.56	29.43	54.78
2	Georgia	96	46.92	43.41	34.53	62.81
3	Armenia	88	44.51	37.97	32.91	62.66
4	Turkiye	53	60.63	70.73	45.13	66.02
5	Russia	39	64.72	72.15	45.38	76.62
6	İran	91	43.88	26.54	38.82	66.29
7	Kazakhstan	76	51.41	54.75	33.54	65.93
8	Uzbekistan	70	53.45	64.71	33.5	62.14

Note: Global rankings for some countries are approximate based on available data.

The table shows that 8 countries had analyzed and based on the analysis it is possible to rank them accordingly. It is worth mentioning that analyzed countries are regional and, in most cases, have borders

with each other. In general, besides these countries the Oxford Insights (2024) research group observed the data of more than 180 countries.

Azerbaijan ranks 111th globally with an overall score of 39.92, placing it behind Georgia (96th, 46.92), Armenia (88th, 44.51), Turkey (53rd, 60.63), Russia (64.72), Kazakhstan (51.41), and Uzbekistan (70th, 53.45), but ahead of Iran (43.88).

Breaking down by pillars:

Government: Azerbaijan's score of 35.56 is significantly lower than Turkey's (70.73) and Russia's (72.15), indicating gaps in AI adoption in public services and policy frameworks.

Technology Sector: The weakest area at 29.43, highlighting challenges in the innovation ecosystem and private sector involvement—even trailing Iran (38.82).

Data & Infrastructure: A somewhat competitive 54.78, though still behind Russia (76.62) and Turkey (66.02).

This comparison underscores the need for targeted investments in the technology sector, improved government frameworks, and infrastructure development to elevate Azerbaijan's regional leadership. These align fully with the 2025–2028 AI Strategy.

Industrialization and AI Application

Modernizing industry lies at the heart of Azerbaijan's economic diversification agenda. Currently, the non-oil industry accounts for less than half of GDP, with much Soviet-era industrial potential either dismantled or underutilized. AI can revitalize this sector through "smart manufacturing" methods, including automation, robotics, and algorithms that predict equipment failures, reducing downtime and operational costs (Aghion et al., 2017). For example, machine learning models can analyze sensor data from production equipment to optimize performance and extend service life.

In energy-intensive fields, particularly oil and gas processing, AI enables efficient resource use, minimizes waste, boosts energy savings, and supports transitions to renewable sources.

AI-based supply chains can also enhance Azerbaijan's transit capabilities, especially within the "One Belt, One Road" initiative, where the country could serve as a key transit hub. Predictive analytics can forecast demand, optimize logistics routes, and manage warehouses in real-time, cutting cross-border trade delays and costs. An ambitious industrial policy should include AI-equipped technoparks and high-tech clusters in areas like semiconductors, renewable energy technologies, agritech, and advanced logistics. Reviving Azerbaijan's historical legacy in semiconductor production—recall that one of the first chip factories outside the US during the Soviet era was in Azerbaijan—could integrate the country into global critical technology supply chains.

Agriculture, a major employer in Azerbaijan but plagued by low productivity due to outdated methods, holds great potential for AI-driven precision farming. Drones for aerial monitoring, algorithms for soil and crop analysis, and machine learning models for predicting climate and pests can boost yields while making resource use more efficient. Amid global food security concerns driven by climate change and population growth, Azerbaijan could emerge as an exporter of "smart agriculture products and technologies" (Sachs, 2015). The 2025–2028 AI Strategy supports this through technoparks, agritech innovations, and public-private partnerships (Aliyev, 2025).

Moreover, AI application in industry promotes environmental sustainability. Algorithmic models can simulate production processes to reduce carbon emissions and encourage green manufacturing. Experiences from other countries, like Germany's "Industry 4.0" initiative, show that AI integration creates more resilient and flexible production ecosystems. Azerbaijan could adopt similar models: launching pilot projects in key regions, scaling successful results, and continuously monitoring employment and economic outcomes.

Labor Market Reforms and Human Capital Development

The adoption of artificial intelligence (AI) inevitably impacts the labor market. Studies indicate that about 47% of current jobs are susceptible to automation, particularly those involving routine and repetitive tasks (Frey & Osborne, 2017). While this raises the risk of job reductions, it also creates opportunities in high-skill areas like data science, AI engineering, and digital entrepreneurship. Automation technologies by using AI, can significantly improve productivity and economic growth, but they also risk worsen income inequality by displacing low-skill jobs while creating demand for high-skill roles (Acemoglu & Restrepo, 2018). At the same time automation of work process creates the risk of job reductions, it also creates opportunities in high-skill areas such as data science, AI engineering, and digital entrepreneurship (Bessen, 2019).

To minimize negative effects and capitalize on positives, Azerbaijan should prioritize reskilling and upskilling policies in its labor market reforms.

Key initiatives include:

Integrating STEM education with AI curricula: From schools to universities, incorporating AI modules into science, technology, engineering, and mathematics (STEM) programs to equip future generations with coding, machine learning, and ethical AI knowledge.

Vocational training programs: Especially through AI-based platforms, to transition workers from declining traditional industries to new fields like tech services and "smart agriculture."

Personalized e-learning: AI-powered platforms offering customized courses, adaptive learning paths, and continuous assessment to support lifelong education for all age groups.

Education should emphasize not only technical skills but also soft skills—critical thinking, creativity, problem-solving, and emotional intelligence—which cannot be replaced by AI (Autor, 2015). Reforms should promote multidisciplinary approaches, such as combining AI with business, healthcare, and environmental sciences, to produce more adaptable specialists.

The 2025–2028 AI Strategy plays a crucial role here, envisioning:

Inclusion of AI in national curricula,

Funding for workforce training programs,

Preparation of skilled experts through international collaborations (Aliyev, 2025).

To prevent inequalities, policies should support vulnerable groups—like rural workers or older employees—through targeted training subsidies and inclusive access to digital tools. Monitoring labor market changes via AI analytics will allow the government to anticipate trends and adjust policies accordingly.

Thus, human capital development must align with economic demands while ensuring social justice.

Fiscal Policy and AI-Based Governance

For Azerbaijan, fiscal reforms are vital for macroeconomic stability, and AI offers powerful tools to enhance transparency, efficiency, and accountability.

Automated tax collection: AI systems can analyze financial transactions to detect tax evasion and fraud, enabling fairer revenue collection without added administrative burden (OECD, 2021).

Expenditure optimization: Machine learning algorithms identify inefficient spending, forecast budget needs, and provide data-driven resource allocation suggestions.

Algorithmic auditing: Real-time monitoring of public financial flows and flagging suspicious transactions can significantly curb corruption.

However, AI in fiscal governance raises ethical issues: data privacy, algorithmic bias, and the need for human oversight. Policies must balance technological efficiency with protecting citizens' rights and ensuring fair outcomes.

Integrating AI into Azerbaijan's tax and budget systems could substantially increase non-oil revenues, supporting investments in priority areas like education, healthcare, and infrastructure.

In the hydrocarbon sector, AI governance mechanisms can track revenues, royalties, and distributions to minimize mismanagement risks. Publicly accessible digital dashboards for citizens could further enhance transparency.

The 2025–2028 AI Strategy supports these fiscal reforms, deeming AI essential for transparency, efficiency, and anti-corruption efforts in public administration (Aliyev, 2025). Additionally, AI can enable scenario modeling in fiscal planning, simulating the impacts of economic shocks or policy changes to make decisions more scientifically grounded. International examples, such as Singapore's use of AI in public finance, offer valuable lessons for Azerbaijan. Such approaches can foster more resilient fiscal policies amid global uncertainties.

Financial Reforms: Digital Banking, Fintech, and Central Bank Digital Currencies (CBDCs)

Here is the revised text with in-text citations converted to author-year format:

Azerbaijan's financial system urgently needs modernization to support a digital economy. AI can revolutionize the banking sector—for instance, through advanced credit scoring models using alternative data sources like social media metrics and transaction histories, making loans accessible to small and medium enterprises (SMEs) and underserved populations, thereby boosting financial inclusion (Arner et al., 2016).

AI-based real-time fraud detection systems analyze transaction patterns to prevent unauthorized activities, ensuring security in an increasingly digital environment.

Blockchain technology and smart contracts can automate financial operations, reducing risks and enhancing market transparency and trust. Central Bank Digital Currencies (CBDCs), such as a proposed "digital manat," would strengthen monetary policy sovereignty, improve cross-border payment efficiency, and reduce reliance on cash (Auer et al., 2020).

To foster fintech ecosystem growth, "regulatory sandboxes"—controlled environments for testing innovative products—could play a key role. This would stimulate startups specializing in AI-based solutions for payments, insurance, and management.

The 2025–2028 AI Strategy identifies fintech development, digital manat pilots, and blockchain integration as priorities (Aliyev, 2025). Collaborations with international fintech hubs could facilitate the adoption of best practices and the export of local solutions. However, cybersecurity risks must be addressed through robust legal and institutional mechanisms. Ultimately, these financial reforms will contribute not only to economic efficiency but also to sustainable macroeconomic stability.

Governance, Ethics, and AI Regulation

Effective AI adoption depends not just on technology but also on strong governance and ethical frameworks. Principles of transparency, accountability, and fairness are essential for building public trust. Azerbaijan could establish a "National AI Ethics Council" to align with international standards from UNESCO, the European Union, and others. This council would monitor AI implementation, develop ethical guidelines, and strengthen legislation on data sovereignty.

Joint data standards and cybersecurity protocols with regional countries would prevent fragmentation and support cross-border innovations. To avoid discrimination in AI systems, diverse data sources and regular audits are crucial. Mechanisms for public participation would make AI policies more inclusive and transparent.

Education, Science, and Innovation Ecosystem

Building a knowledge-based economy requires a thorough overhaul of education and research institutions. In line with international recommendations, Azerbaijan should aim to create at least two world-class

universities in the coming decade, specialized in AI, equipped with modern labs, advanced technical infrastructure, and international faculty.

Multidisciplinary AI research centers focused on applications in energy, agriculture, healthcare, and finance would stimulate innovation, curb brain drain, and retain local talent.

A dynamic startup ecosystem is also essential, supported by venture funds, business incubators, and AI-oriented accelerators to commercialize research outcomes. To achieve this, R&D spending as a share of GDP should rise from the current 0.2% to at least 2–3% by 2030, aligning with OECD benchmarks and ensuring technological independence.

The 2025–2028 AI Strategy allocates specific resources for research centers, startups, and international collaborations. Investing in science and innovation will secure long-term economic growth sustainability. Additional policies for ecosystem expansion include tax incentives for R&D, joint programs with global universities, competitions for young innovators, and metrics like patent applications and successful startup rates to measure progress.

Strategic Challenges and Opportunities

Challenges

Implementing AI-driven reforms comes with several hurdles:

- Skills and knowledge gaps: Azerbaijan lacks sufficient AI specialists. Learning from global experiences, education reforms, and international training programs are key to addressing this.
- Infrastructure limitations: Without powerful computing resources, reliable data centers, and high-speed internet, digital transformation is impossible—especially in rural areas.
- Geopolitical risks: Global competition over AI technologies may limit access to resources and partnerships, requiring balanced diplomacy.
- Digital divide: Unequal access between urban and rural areas could exacerbate social inequalities; targeted infrastructure investments are needed.
- Institutional rigidity: Existing bureaucratic systems and outdated norms may hinder reforms, necessitating change management strategies.

Opportunities

Azerbaijan also has distinct advantages:

- Energy resources: Hydrocarbon revenues can fund AI infrastructure and research.
- Geographic position: As a bridge between Europe and Asia, it could become a digital corridor.
- Youthful population: Tech-savvy and innovative youth, with proper education and motivation, can drive AI entrepreneurship.
- Regional leadership: Early AI adoption could position Azerbaijan as a digital leader in the South Caucasus.

Timely and effective resolution of challenges will unlock these opportunities and amplify the country's development potential.

AI-Driven Economic Reforms Roadmap

A phased roadmap for integrating AI into Azerbaijan's economy, based on the national strategy, consists of three stages:

- Stage I (2025–2030) – Foundation Building: Adopt the national AI strategy, add AI subjects to education programs, establish research labs. Implement pilots in taxation, public administration, and fintech. Focus on capacity building and regulatory frameworks.

- Stage II (2030–2040) – Expansion and Integration: Scale AI applications in industrial clusters and "smart factories." Deploy digital solutions in healthcare, education, and agriculture. Fully launch the digital manat (CBDC), integrate blockchain into governance, and expand 5G networks and data centers.

- Stage III (2040–2050) – Global Competitiveness: Transform Azerbaijan into a regional AI hub linking Europe and Asia. Achieve globally ranked universities, a robust innovation ecosystem, and exports of AI solutions.

Each stage should include specific metrics, outcome indicators, and adaptation mechanisms for technological changes.

Examples and International Experiences

Lessons from world leaders can guide Azerbaijan:

- Singapore has successfully applied AI in public administration and fintech through its "smart nation" concept, investing in education, digital infrastructure, and innovation ecosystems.

- South Korea achieved rapid growth in electronics and AI via public-private partnerships, supported by strong government policies and education systems.

- Estonia ensures efficiency and transparency in governance with AI-based e-services and digital IDs.

- China has become a global AI leader through state-directed strategies, massive funding, research funds, and startup support.

Azerbaijan can adapt these experiences to its scale, leveraging unique strengths in energy and logistics.

Regional and International Cooperation Perspectives

Azerbaijan's AI-driven reforms extend beyond national borders. Regional opportunities include:

- South Caucasus Digital Corridor: A joint initiative with Georgia and Turkey for AI-enhanced logistics and trade networks.

- Partnership with the European Union: AI solutions for renewable energy, smart grids, and green transitions.

- Participation in global forums: Active involvement in defining international AI ethics and governance standards to protect national interests and attract investments.

Challenges in AI Implementation

One of the biggest hurdles in AI-based reforms is ensuring their ethical and inclusive execution; otherwise, social inequalities could deepen, and public trust erode.

For example, biases in decision-making algorithms might negatively affect marginalized groups. Automation without adequate social safety nets could lead to widespread job losses.

AI adoption can follow stages akin to economic transformation:

1. Initial phase – pilots and early investments in key sectors.

2. Integration phase – broadening and interconnecting AI across industries.

3. Full realization – Joining global value chains and exporting competitive AI solutions.

Data privacy breaches, cybersecurity vulnerabilities, and dependence on foreign technologies must also be managed carefully.

Conclusion

AI-driven economic reforms open vast opportunities for Azerbaijan, aiding economic diversification, competitiveness, and sustainable development.

The core roadmap—foundation, expansion, and global competition stages—aims to free the country from oil dependence and transition to a knowledge- and technology-based society.

At the heart of this process is the "Artificial Intelligence Strategy of the Republic of Azerbaijan (2025–2028)," approved by President Ilham Aliyev in March 2025. Covering education, science, ethics, infrastructure, and inclusivity, it positions AI as a key catalyst for economic reforms.

Success requires three-way partnerships:

- Government: Creating clear ethical and legal frameworks and overseeing implementation.
- Industry and academia: Providing advanced training, innovation, and knowledge exchange.
- Society: Supporting efforts to bridge digital divides and promote inclusive approaches.

In essence, AI-driven reforms can enhance not only Azerbaijan's internal development but also its regional leadership and global integration.

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