Institute for Statistical Studies
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Centre for Statistics and Monitoring
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Statistical Measurement of Artificial Intelligence Implementation Processes

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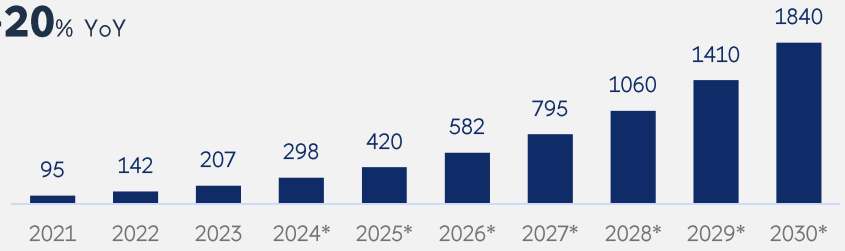
The rise of AI in economy and society – a defining trend of recent years

Global AI market size, USD billion

+20% YoY



* Forecast.
Source: Statista.

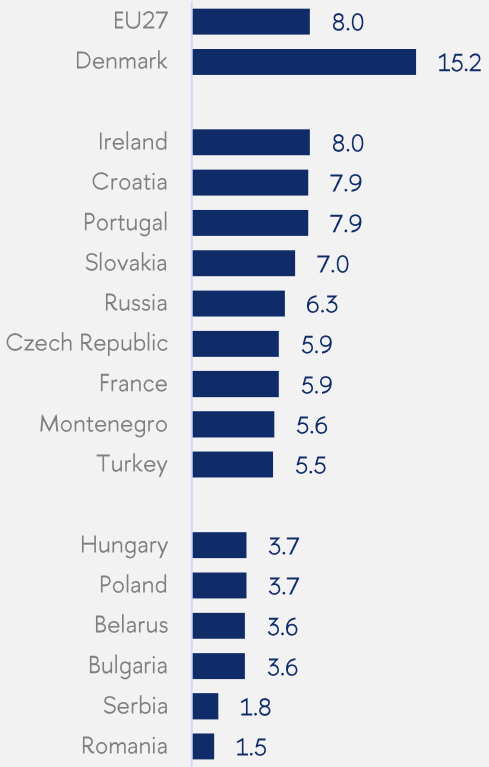
GDP growth in CIS countries through AI implementation: 2030

+53.6 USD billion

5.9% of GDP in CIS countries

Source: CNews based on Sberbank estimates.

AI usage by enterprises by country: 2023, % of enterprises in the business sector



Source: Russia - calculations of ISSEK NRU HSE based on Rosstat data; foreign countries – Eurostat, Belstat.

AI usage by enterprises – a central focus of official statistics

Main topics of AI statistical measurement on the example of select countries

Main topics	Russia	Belarus	Kazakhstan	Kyrgyzstan	Eurostat	Israel	USA	Canada	Republic of Korea	Japan
AI usage	■	■	■	■	■	■	■	■	■	■
AI integration in business processes / purpose of AI usage	■	■		■	■	■	■	■	■	■
Types of AI technologies used	■	■		■	■			■		
Big data sources	■		■	■	■					
Methods of acquiring AI software/systems	■				■	■				
Plans on implementation/usage of AI in the future					■				■	■
Barriers for AI usage	■				■					
Results of AI usage	■									
AI-related expenditures and funding sources	■									
Infrastructure for big data storage and processing	■									
Personnel digital skills	■				■	■		■		
AI's impact on employment/specialist demand	■						■			
AI research and development	■									■

Source: compiled based on open sources.

It is important to develop a unified framework for tracking AI across all stages of the technology lifecycle

Statistical monitoring of artificial intelligence technologies development and usage

Objective: establishing a system for statistical observation of the R&D of artificial intelligence technologies, production of related goods and services, AI usage by economic sectors and social spheres, harmonized with international statistical standards and Russian practices

2023

- Development of definitions and classifications
- Formulating a list of indicators
- Preparation and testing of methodology

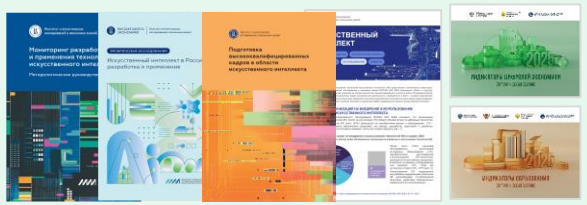
2024

- Conducting pilot surveys
- Calculating indicators
- Proposals for integration into federal statistical observation practices

2025

- Federal statistical observation across all stages of the technology lifecycle

Information base for analysis of AI market, estimates of the impacts from AI, monitoring the implementation of state policies, evaluation of business strategies, estimates of the composite indicators, and other related aspects



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It is important to have statistical definitions and classifications

Artificial Intelligence – set of technological solutions designed to emulate human cognitive functions (including problem-solving without predefined algorithms) and to achieve results in specific tasks that are comparable to or surpass those produced by human intellectual activity. Set of technological solutions integrates information and communication infrastructure, software (including machine learning methods), and processes and services for data processing and solution discovery

Source: the National Strategy for the Development of Artificial Intelligence until 2030.

Classification of AI technologies

Compliance with the main Russian strategic documents

Reflection of the functional area (classes), the function performed (subclasses)

5 classes

41 subclasses

Classification of goods and services related to AI technologies

Addition of OKPD2 (= CPA ver. 2008; CPA ver. 2.1) at the level of classes, subclasses, groups, subgroups, types

Relation to the classification of AI technologies

4 groups

91 subgroups

Artificial intelligence technologies are a set of technologies covering:

- visual data processing, including computer vision
- audio data processing, including speech recognition and synthesis
- text processing
- intelligent decision-making support and management
- artificial intelligence efficiency enhancement technologies

Goods and services related to artificial intelligence technologies are:

- primary AI products (AI components)
- goods, containing AI components
- services, provided with the use of AI
- goods and services, used in development, production and using of AI

A metrics framework across all stages of the AI technology lifecycle has been established: resources – development – usage – impacts

Metrics framework for monitoring of AI technologies development and usage

Requirement

- Mass character and constancy of the phenomenon
- Ability to receive data in a timely manner, update it regularly, and evaluate it objectively
- Harmonization with international and national statistical standards
- Accuracy and unambiguity of formulations

4 categories **>100** indicators

1. Science and AI technologies
   - 1.1. Research and development
   - 1.2. Publication activity
   - 1.3. Patent activity
   - 1.4. Advanced manufacturing technologies development
2. Implementation of goods and services related to AI technologies
   - 2.1. Production
   - 2.2. Innovation activity
3. AI Usage
   - 3.1. AI implementation and usage expenditures
   - 3.2. AI technologies usage
   - 3.3. Advanced manufacturing technologies usage
4. Resources for AI development
   - 4.1. Infrastructure
   - 4.2. Employment and competencies
   - 4.3. Education and training of personnel

Sources

- Specialized survey of enterprises
- Specialized survey of high education
- Databases on indicators of patent and publication activity
- Rosstat data on statistical questionnaires:
  - № 2-nauka
  - № 4-innovatsiya
  - № 1-tekhnologiya
  - № 3-inform
  - № VPO-1
  - № 1-PK
- Other open sources

Specialized surveys have been conducted to assess the development, implementation, usage of artificial intelligence, as well as personnel education and training

Sample survey of enterprises

2.3 thousand

Structure of the questionnaire

- AI research and development
- Usage and plans for AI implementation
- Domains of AI usage
- AI expenditures
- Barriers to AI usage
- AI-related goods and services production
- AI-skilled personnel
- Creation and storage of big data
- Results of AI usage

Exhaustive survey of universities

1.2 thousand

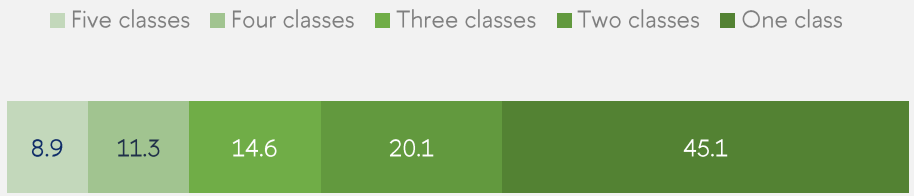
Structure of the questionnaire

- AI educational programs and delivery formats
- Student contingent (enrollment, admissions, graduation rates)
- Academic and teaching staff
- Digital infrastructure for AI education program implementation

Starting from the results for 2024, new topics on AI have been integrated into federal statistical observation practices by questionnaires № 2-nauka, 4-innovatsiya, 3-inform, 1-IT

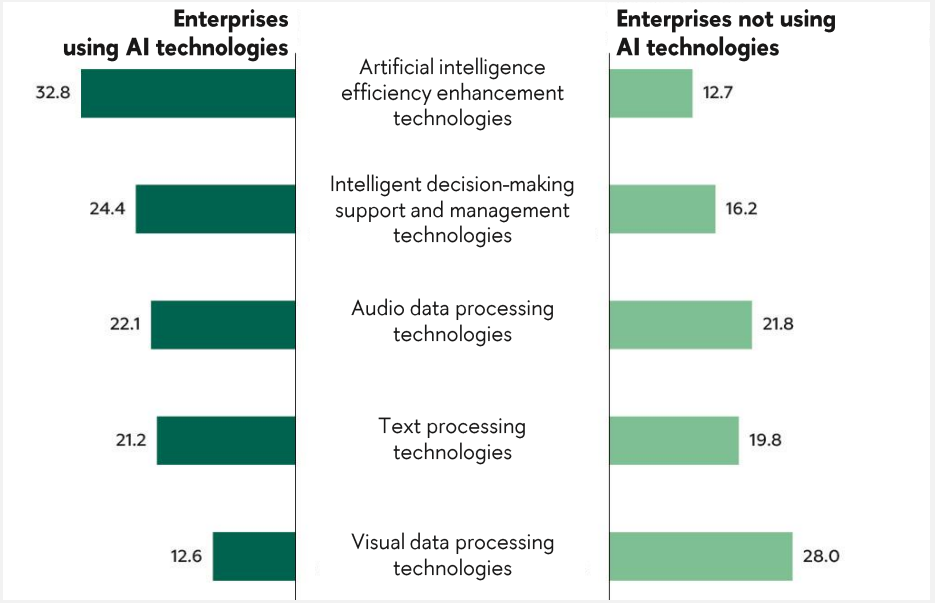
A major trend among businesses is the increased use of AI

Distribution of enterprises by number of AI technology classes used: 2023*, % of surveyed enterprises AI using



* The following classes of AI technologies are considered: visual data processing technologies, including computer vision; audio data processing technologies, including speech recognition and synthesis; text processing technologies; intelligent decision-making support and management technologies; artificial intelligence efficiency enhancement technologies.

Enterprises' plans to implement AI technologies by classes over the next three years: 2023, % of surveyed enterprises by group



Source: Digital Economy Indicators in the Russian Federation: Data Book. HSE, 2025.

The current level of AI implementation and its potential for future expansion depend on enterprises' financial resources

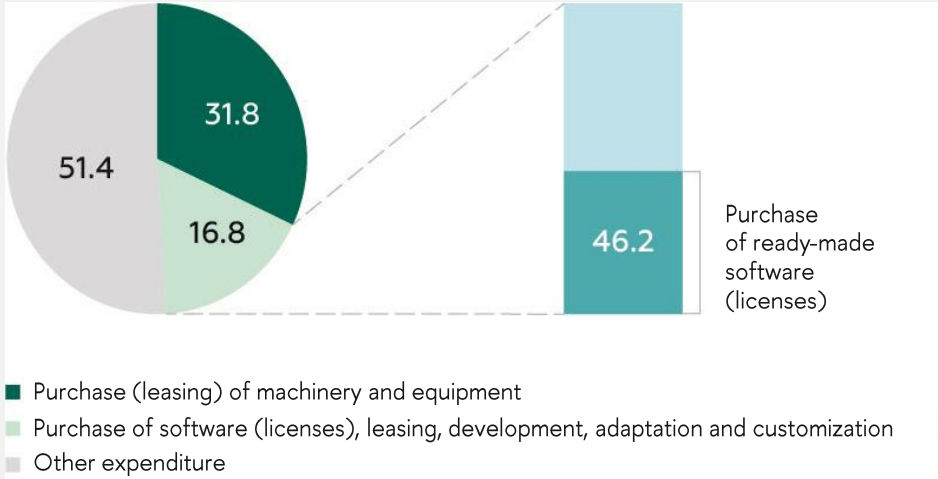
145.7 RUB billion*
volume of AI expenditures

* Estimate by HSE ISSEK based on data from a specialized survey and Rosstat.

>50%
share of own funds in AI expenditure structure

15%
of total volume digital technology expenditure

AI expenditure structure of surveyed enterprises by types of expenditure: 2023, %



Source: Digital Economy Indicators in the Russian Federation: Data Book. HSE, 2025.

To sum it up

The system of statistical measurement of the full technology lifecycle makes it possible:

- to track AI development from the R&D and production of related goods and services to their usage by enterprise's sector and social spheres
- to estimate the effects of AI usage and its impact on societal well-being

AI has potential to advance the SDGs

Although AI-specific indicators are not explicitly included into the SDG framework, the influence of AI technologies can be considered in the context of almost every goals of SDGs

Thank you for your attention!

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