UKRAINIAN GLOBAL INNOVATION STRATEGY 2030

Full version

DECEMBER 2024 — JANUARY 2025

ABBREVIATIONS AND DEFINITIONS

KEY DEFINITIONS

Strategy	Ukrainian Global Innovation Strategy 2030
CDTO	Chief Digital Transformation Officer
Industry 4.0	Production practices focused on technology and process streamlining and automation
Industry 5.0	Production practices that integrate the human factor into the digital economy, considering social and environmental concerns

ABBREVIATIONS

AI	Artificial Intelligence	MIA	Ministry of Internal Affairs of Ukraine
AR	Augmented Reality	NAS	National Academy of Sciences of Ukraine
CMU	Cabinet of Ministers of Ukraine	OECD	Organization for Economic Cooperation and Development
EU	European Union	R&D	Research and development
EBRD	European Bank for Reconstruction and Development	SDG	Sustainable Development Goal
GDP	Gross domestic product	SSAU	State Space Agency of Ukraine
DIU	Defense Intelligence of the Ministry of Defence of Ukraine	SSU	Security Service of Ukraine
HEI	Higher educational institution	UAV	Unmanned Aerial Vehicle
IP	Intellectual property	USA	The United States of America
IT	Information technologies	VAT	Value-Added Tax
MES	Ministry of Education and Science of Ukraine	XR	Extended Reality
MDT	Ministry of Digital Transformation of Ukraine		

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1

INTRODUCTION: UKRAINIAN GLOBAL INNOVATION STRATEGY 2030

1.1

STRATEGY VISION AND GOAL

THE STRATEGY OUTLINES THE VISION OF UKRAINE AS A COUNTRY OF INNOVATIONS, WHERE AN ECOSYSTEM HAS BEEN CREATED FOR THE FREE DEVELOPMENT OF BREAKTHROUGH IDEAS

STRATEGY MISSION IS TO CREATE NEW OPPORTUNITIES FOR UKRAINIANS: FOR INDIVIDUALS, BUSINESSES, INVESTORS, SCIENTISTS, RESEARCHERS AND INNOVATORS

The Strategy outlines the directions, principles, goals and objectives of the state policy in the field of digital development of innovation until 2030

SECURITY

By using innovations to develop the defence sector, Ukraine will become an influential participant in the global security system and an innovative center for developing methods to protect peace and democracy

POLITICAL

By realizing the export potential of its own technological products, Ukraine will become a regional leader and driver of innovation in the EU

DIGITALIZATION

Ukraine will become a state with a strong digital economy that supports entrepreneurship, provides effective digital services that minimize corruption risks at any level

ECONOMIC

Ukraine will achieve an economic breakthrough with innovative products, attracting private initiative, developing human capital, deregulation, commercialization of science and creation of high-tech industries

SOCIAL

Ukraine will become one of the world's leaders in innovation, ensuring gender equality, improving living standards, supporting vulnerable groups, barrier-free services, and addressing the challenges of population aging and migration

IMPLEMENTING THE STRATEGY WILL CONTRIBUTE TO DEVELOPING AN ENVIRONMENT WHERE EVERYONE CAN PARTICIPATE IN THE INNOVATIVE DEVELOPMENT OF UKRAINE

INNOVATIVE INFRASTRUCTURE

A developed base of innovation and science parks, accelerators, business incubators and other infrastructure that provide innovators with access to R&D and development

TALENTS

A large number of highly skilled professionals who are motivated to conduct their own research, think creatively and create innovations

INTERNATIONAL COOPERATION

Open opportunities for cross-border cooperation that facilitate the exchange of experience and knowledge with developed countries

ADVANCED TECHNOLOGIES

Increased productivity of the traditional industries through the introduction of AI, XR, blockchain and other advanced innovative technologies

ACCESS TO FINANCING

Extensive government grant programs and a strong venture capital market that provide equal funding opportunities for generators of innovative ideas

A PHASED APPROACH WILL BRING ADAPTABILITY AND IMPROVEMENT OF STRATEGIC EFFORTS, CONTRIBUTING TO THE LONG-TERM SUSTAINABILITY OF INNOVATION INITIATIVES

MILESTONES IN ACHIEVING THE GOALS OF THE UKRAINIAN GLOBAL INNOVATION STRATEGY 2030

In order to implement the Strategy, an operational plan has been developed, which provides the following measures to achieve the goals and objectives of the Strategy in three stages:

2025 - 2026

- Improve the legal framework
- Support for research and development
- Develop infrastructures for startups
- Facilitate technology transfer

2027-2029

- Improve access to finance for innovative enterprises
- Stimulate cooperation between scientific institutions and business
- Implement an education system focused on creative and entrepreneurial thinking

2030

- Review of the experience gained from the previous stages to identify the most effective measures
- Design of a medium-term strategy for further strengthening the country's innovation potential

THE STRATEGY WAS DEVELOPED CONSIDERING LIMITED FINANCIAL RESOURCES. THEREFORE, THE EFFORTS ARE FOCUSED ON MAINTAINING AND DEVELOPING THE OVERALL INNOVATION INFRASTRUCTURE AND ECOSYSTEM, OPTIMIZING INNOVATION SUPPORT MECHANISMS, AND PROVIDING SPECIAL SUPPORT TO PRIORITY INDUSTRIES WHERE THE PUBLIC BENEFIT WILL BE THE GREATEST AND THE ECONOMIC IMPACT THE MOST TANGIBLE.

1.2

KEY CHALLENGES TO INNOVATIONS IN UKRAINE

A NUMBER OF BARRIERS PREVENT UKRAINE FROM ACHIEVING THE EXPECTED RESULTS AND NEED TO BE OVERCOME TO BUILD A STONG INNOVATION ECOSYSTEM (1/2)

KEY BARRIERS TO THE DEVELOPMENT OF INNOVATION IN UKRAINE

INSUFFICIENT LEVEL OF PRIVATE AND PUBLIC FUNDING

to support R&D, start-ups and innovative enterprises, which hinders scientific and technological progress

LOW DEVELOPMENT OF INNOVATION INFRASTRUCTURE

specifically, the absence or inefficiency of technology parks, startup incubators, innovation hubs and clusters, which hinders the development of innovations

THE LACK OF ACCESS TO INTERNATIONAL MARKETS

for receiving R&D financing slows down the entry of scientific developments into the market

A COMPLEX ADMINISTRATIVE BURDEN

of innovative projects can prevent efficient implementation of digital solutions

WEAK COOPERATION

between scientific institutions, business and the state, which reduces the efficiency of the innovation process

MIGRATION OF QUALIFIED STAFF AND SCIENTISTS

which was caused by the war and lack of prospects for R&D-activities

A NUMBER OF BARRIERS PREVENT UKRAINE FROM ACHIEVING THE EXPECTED RESULTS AND NEED TO BE OVERCOME TO BUILD A STONG INNOVATION ECOSYSTEM (2/2)

KEY BARRIERS TO THE DEVELOPMENT OF INNOVATION IN UKRAINE

LIMITATIONS OF THE DOMESTIC MARKET AND DIFFICULTY OF INTEGRATION INTO GLOBAL SUPPLY CHAINS

hinder the development and scaling of innovative enterprises

LACK OF OPEN ACCESS TO LABORATORIES AND TECHNOLOGY PARKS

limits cooperation and knowledge exchange between scientists, startups and businesses

EXTENSIVE REGISTRATION PROCEDURES AND LACK

of awareness of IP commercialization slow the transformation of scientific research into competitive products

INSUFFICIENT DEVELOPMENT OF VENTURE CAPITAL FINANCING

prevents innovators from implementing innovations in the economy faster and more efficiently

LACK OF STATE FINANCING

for industrial parks development

MISMATCH OF SKILLS OF THE POPULATION WITH MARKET REQUIREMENTS

which leads to a shortage of qualified personnel

1.3

KEY ACTIONS TO ACHIEVE THE EXPECTED GOALS

SUCCESSFUL IMPLEMENTATION OF THE ACTIONS OF THE STRATEGY WILL HAVE A MULTIPLIER EFFECT ON THE DEVELOPMENT OF THE INNOVATION ECOSYSTEM AND THE ECONOMY

THE STRATEGY FORESEES ACHIEVEMENT OF STRATEGIC GOALS THROUGH THE IMPLEMENTATION OF COORDINATED HORIZONTAL TASKS

EFFECTIVE INNOVATION MANAGEMENT AT THE NATIONAL LEVEL. INNOVATION IS A NATIONAL PRIORITY

STRENGTHENING AND DEVELOPING THE INNOVATION ECOSYSTEM

EFFECTIVE REGULATION AND STIMULATION OF INNOVATION DEVELOPMENT THROUGH FINANCIAL SUPPORT. OPENING MARKETS FOR PRIORITY INDUSTRIES

ENSURING COOPERATION AND SYNERGY BETWEEN SECTORS IN UKRAINE AND GLOBALLY. OPENING UP OF PRIORITY INDUSTRIES TO COE

FULLY UTILIZING THE POTENTIAL OF INTERNATIONAL COOPERATION

ENSURING THE NECESSARY COMMUNICATION

2

PREREQUISITES FOR UKRAINIAN GLOBAL INNOVATION STRATEGY 2030

2.1

CURRENT STATE OF INNOVATION IN UKRAINE

DIGITAL TRANSFORMATION OF THE COUNTRY IS A CRITICAL IMPERATIVE TO OVERCOME THE DAMAGE OF THE MILITARY AGGRESSION AND RESTORE UKRAINE'S COMPETITIVENESS

At the beginning of 2021, digital development in Ukraine showed positive dynamics, but the overall level of digital development of innovation remained significantly lower compared to leading European countries.

The new stage of military aggression in 2022 deepened the long-term trend of underinvestment in R&D, damaged infrastructure, and weakened human capital.

PROJECTED ASSESSMENT OF THE IMPACT OF A FULL-SCALE INVASION BY THE EBRD

in 2023 compared to 2021

▼ 9%	▼ 28,8%	▼ 37,4%
GDP per capital	decline in real GDP	decline in production

Military risks will remain the biggest threat to Ukraine's sustainable development for a significant period of time

FULL-SCALE WAR DESTROYED AND DAMAGED THE R&D INFRASTRUCTURE

February 2022 - January 2024

1 443	188	750
buildings scientific and educational institutions	engineering structures	scientific equipment

Overall, as of March 2023, 35% of Ukraine's R&D-infrastructure was destroyed or damaged

LARGE-SCALE RELOCATION OF UKRAINIANS ABROAD CAUSED BY THE WAR HAS CREATED NEW DEMOGRAPHIC CHALLENGES AND RISKS FOR THE ECONOMIC RECOVERY

The full-scale invasion in 2022 led to the massive relocation of Ukrainians abroad, creating risks for economic recovery, including the innovation sector. The loss of human capital, especially among highly skilled professionals, could slow the adoption of new technologies and reduce Ukraine's competitiveness in the international arena.

MASSIVE RELOCATION OF UKRAINIANS ABROAD

AS OF 2023

5,6–6,7 M

ukrainians are abroad because of the war[1]

1,3–3,3 M

ukrainians may stay abroad, according to various estimates

2,7–6,9%

possible additional losses in GDP annually due to non-return of Ukrainians

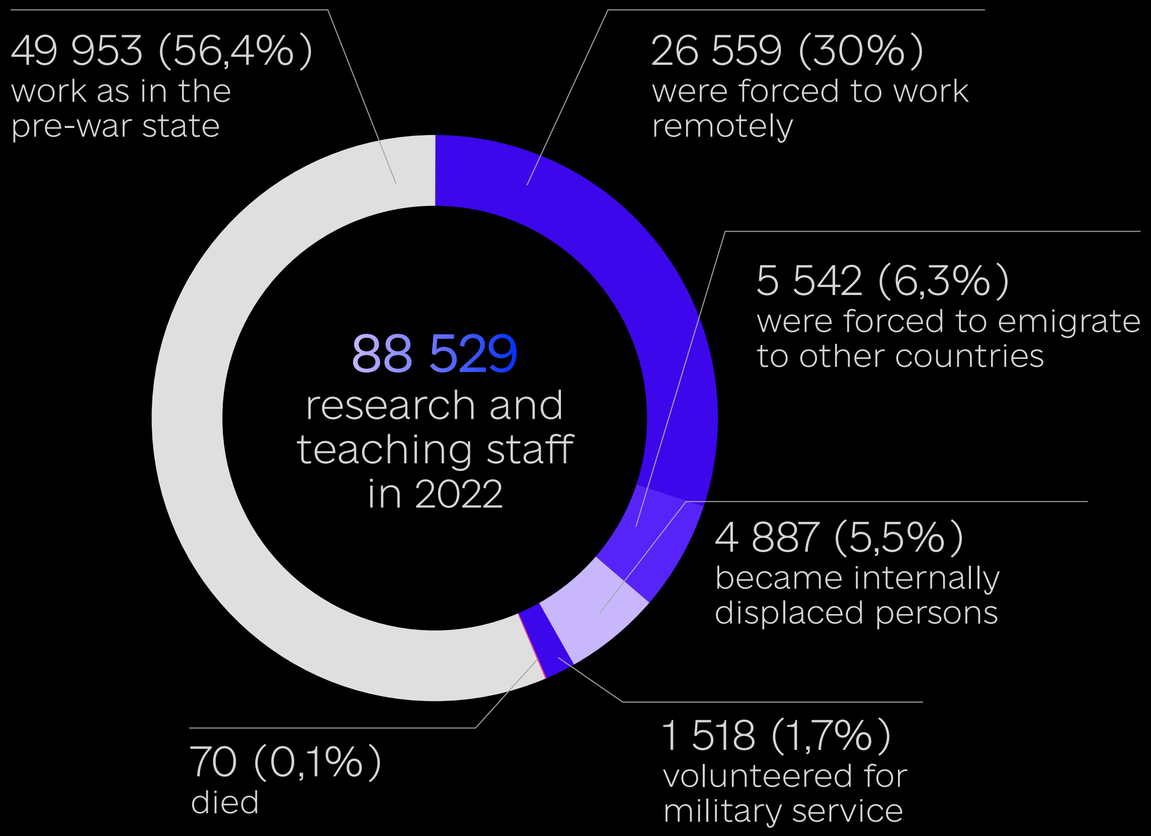
70%

is the share of women among adult refugees in most host countries

[1] By the end of June 2023, according to the Center for Economic Strategy

MILITARY AGGRESSION HAS DRAMATICALLY AFFECTED THE SCIENTIFIC POTENTIAL OF UKRAINE, CAUSING THE MIGRATION OF TALENT AND A LOSS OF SCIENTIFIC CAPACITY

According to the European Commission's 2023 Report on Ukraine, 25% of scientific human capital left the country



In the context of human capital loss, the Global Talent Competitiveness Index is a comprehensive annual report that demonstrates how countries and cities develop, attract and retain talent. It enables higher education institutions to understand the global situation in terms of competition and develop strategies to boost their economies. In 2023, Ukraine was ranked 64th in the ranking and worsened its position compared to 61st in 2021.

GLOBAL TALENT COMPETITIVENESS INDEX 2023

1. Switzerland
2. Singapore
3. Denmark

...

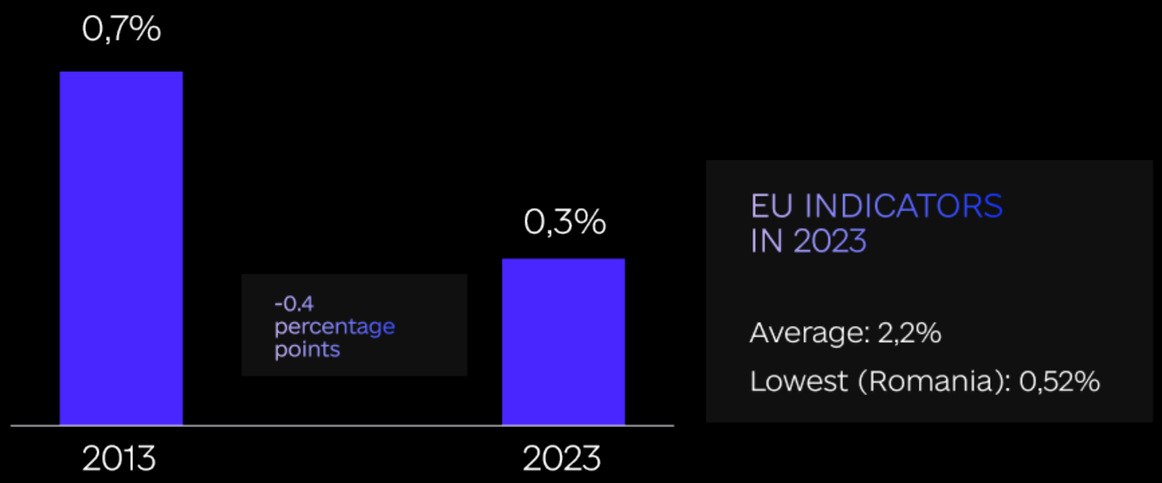
64. Ukraine (61 in 2021)

DECREASE IN R&D SPENDING AND UNDERINVESTMENT IN EDUCATION SLOW DOWN THE ADOPTION OF NEW TECHNOLOGIES AND INNOVATIONS

In addition to the devastating impact of the full-scale invasion, Ukraine is seeing a long-term trend of declining spending on scientific research

RESEARCH INTENSITY OF UKRAINE'S GDP

% of research expenditures to GDP



EU INDICATORS IN 2023

Average: 2,2%

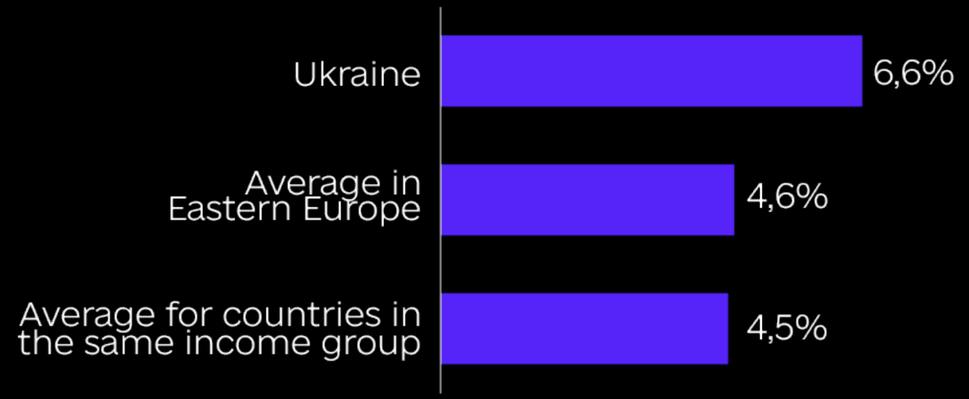
Lowest (Romania): 0,52%

In 2020, spending on research in Ukraine fell to under half of its 2003 level, and the main source of funding for innovation was own funds of businesses (75,1%)

However, Ukraine invests a relatively large share of its GDP in education, which is disproportionately reflected in the results and indicates the inefficiency of the education system

INVESTMENTS IN EDUCATION, % IN GDP

% of research expenditures to GDP



PISA 2022 shows that only 59% of Ukrainian 15-year-olds have reached the basic level of reading literacy, 58% of math literacy, and 66% of science literacy

HIGH LEVEL OF TALENT OUTFLOW RESULTS IN DECLINING EXPORTS OF HIGH-TECH PRODUCTS WHICH WAS SIGNIFICANTLY LOWER COMPARED TO THE EU

Ukraine is one of the Top 10 countries where startup founders with over USD 1 billion in capitalization were born. This is a testament to the high level of talent, but also to the high level of human capital outflow

EXPORT OF HIGH-TECH PRODUCTS IN 2021

🇺🇦 UKRAINE

ONLY 5%
of all exports of industrial goods

$1,4 B
decrease by 2,1 times compared to 2012

58,5% of the Ukraine's total merchandise exports are raw materials, and the destruction of production infrastructure, assets, and the emigration of labor resources hampers the development of high-tech sectors of the economy

🇷🇴 Romania
$8,06 B

🇸🇰 Slovakia
$8,45 B

🇵🇱 Poland
$8,06 B

🇩🇪 Germany
$210 B

DESPITE ADVANCEMENTS IN THE SCIENCE AND TECHNOLOGY SECTORS, UKRAINE NEEDS SOME STRATEGIC CHANGES TO STRENGTHEN ITS INNOVATION AND GLOBAL INTEGRATION

The World Intellectual Property Organization annually assesses innovation development for 133 countries to compile the Global Innovation Index. According to the assessment, the Ukraine's innovation capacity demonstrates declining trend compared to the pre-war period

UKRAINE RANKING IN THE GLOBAL INNOVATION INDEX

2021	2022	2023	2024
49 ▼	57 ▼	55 ▲	60 ▼

TOP 3 COUNTRIES BY THEIR SCORES IN 2024

Switzerland	Sweden	USA	Ukraine
67,5	64,5	62,4	29,5

OVERVIEW OF THE INNOVATION ECOSYSTEM IN UKRAINE[1]

ADVANTAGES

- High share of employed women with higher education
- High level of introduction of useful models
- High share of software costs in relation to GDP

STRENGTHS

- Significant export of scientific services
- Relatively strong environmental technology sector
- High level of employment in scientific activities

SIGNIFICANT CHANGES ARE REQUIRED

- Growth rate of labour productivity
- Operational stability for business
- Low share of gross capital formation in relation to GDP

WEAKNESSES

- Low level of R&D spending in the public sector
- Inefficient work to realize innovations
- Low number of international scientific publications

[1] Advantages and areas of focus that require significant changes – according to the Global Innovation Index 2023. Strengths and weaknesses – according to the European Commission's Innovation Scoreboard 2023

2.2

REGULATORY AND LEGAL FRAMEWORK FOR INNOVATION ACTIVITY

THE STRATEGY IS BASED ON PREVIOUS EXPERIENCE IN PLANNING INNOVATIVE ACTIVITIES, AS WELL AS THE EXISTING REGULATORY FRAMEWORK

Creating a favorable environment for innovation is essential for sustainable economic development of Ukraine. The legal and regulatory acts set out in the Strategy are the basis for innovation regulation and stimulation

STRATEGY FOR THE DEVELOPMENT OF THE INNOVATION SECTOR 2030, JULY 10, 2019

- Declares its intention to adapt Ukrainian legislation in the field of innovation to EU legislation
- Implements effective top-level tools to support the development of the innovation ecosystem

NATIONAL ECONOMIC STRATEGY 2030, MARCH 3, 2021

- Determines the access of small and medium-sized businesses to leading technologies, such as broadband Internet, Internet of Things, big data, etc.

ACTION PLAN 2021-2023, APPROVED BY THE CMU DECREE DATED DECEMBER 9, 2021

- Aimed at creating a favorable regulatory environment for the development of digital innovations and technologies, innovation infrastructure and entrepreneurship culture
- Many measures were implemented or promoted even during the armed aggression

PRESIDENTIAL DECREE "ON SUSTAINABLE DEVELOPMENT GOALS OF UKRAINE BY 2030", SEPTEMBER 30, 2019

- The relevant SDG 9 "Industry, Innovation and Infrastructure" is taken into account in the Strategy
- Supporting innovations in the security and defence sector will contribute to the implementation of Goal 16: Peace, Justice and Strong Institutions
- Synchronization with the European Green Deal initiative and Sustainable Development Goals 7, 11, 12, and 13

ALONG WITH THE APPLICABLE LAWS AND REGULATIONS, THE STRATEGY INCORPORATES THE LATEST CHANGES TO THE REGULATORY FRAMEWORK MADE DURING THE WAR

DRAFT LAW OF UKRAINE "ON INNOVATION PARKS", AUGUST 11, 2022

Establishes the legal and organizational framework for the creation and operation of innovation parks for the development of innovations

LAW OF UKRAINE "ON AMENDMENTS TO THE BUDGET LAW OF UKRAINE", APRIL 11, 2023

Enables state scientific and educational institutions to include their own revenues (including dividends) in the budgets of authorized capitals of economic entities

DRAFT LAW "ON SUPPORT AND DEVELOPMENT OF INNOVATION ACTIVITY"[1]

Defines the legal and economic framework for supporting innovation, state policy in the field of innovation, its stimulation and development

AMENDMENTS TO ARTICLE 4 IN THE LAW OF UKRAINE "ON PRIORITY AREAS OF INNOVATION INITIATIVES IN UKRAINE", DATED DECEMBER 21, 2023

Outline strategic innovation priorities until the end of martial law, in particular in the areas of security, energy, transport, rocket and space industry, aircraft and shipbuilding, armaments, agriculture, medicine, nanotechnology, environmental protection, IT and robotics

CMU DECREE №787 "ON CERTAIN ASPECTS IN DETERMINING MEDIUM-TERM PRIORITY AREAS OF INNOVATION AT THE SECTORAL LEVEL", JULY 5, 2024

Determines medium-term priorities for innovation activities to shape investment projects, research and government programs in the context of war and recovery, promoting Ukraine's integration into the European innovation system

[1]It is currently being finalized with the governmental agencies

2.3

EUROPEAN INTEGRATION IN THE FIELD OF INNOVATION

INNOVATION ECOSYSTEM DEVELOPMENT IN UKRAINE IS A PREREQUISITE FOR EUROPEAN INTEGRATION POLICY IN THE INNOVATION SECTOR

Development in science and research is part of the negotiations on the path to Ukraine's EU integration, which will make it possible to stop the outflow of human capital and prevent it from getting worse due to new opportunities to study and work in other EU member states. The development of innovation will also make Ukraine more attractive to citizens of other EU member states

UKRAINE IS ALREADY PARTICIPATING IN THE EU FRAMEWORK PROGRAMS FOR RESEARCH AND INNOVATION AND IS TAKING STEPS TOWARDS EUROPEAN INTEGRATION IN THE FIELD OF INNOVATION

01 DIGITAL EUROPE (DIGITAL)

Українські дослідники мають доступ до програми цифрової трансформації, яка спрямована на розвиток передових цифрових навичок, впровадження цифрових технологій, розбудову цифрової інфраструктури та ще більшу доступність цифрових послуг.

02 HORIZON EUROPE

Activities for Ukrainian researchers and innovators through the expansion of international scientific and technical cooperation. It covers the European Commission's Horizon4Ukraine initiative. In October 2023, the Horizon Europe Office in Ukraine was launched as a structural sub-section.

03 EUREKA

It involves the cooperation of companies and research institutions from more than 45 countries in an international consortium to create an innovative product. Currently, funding for Ukrainian participants comes from the state budget only for network projects and only for higher education and research institutions.

04 SMART SPECIALIZATION (S3)

It is a part of the European integration policy and provides for the adoption of regional innovation development plans taking into account the specifics of each region. By joining the program, regions can get advice from EU experts in developing and implementing regional innovation strategies.

UKRAINE HAS TO FULFILL A SERIES OF TASKS TO ACHIEVE DEEPER EUROPEAN INTEGRATION IN THE FIELD OF INNOVATION

KEY TASKS IN THE DEVELOPMENT OF INNOVATION IN THE CONTEXT OF THE EUROPEAN INTEGRATION AGENDA OF UKRAINE

- Improve the skills of Ukrainian scientists and businesses in applying for EU grants and familiarize them with the procedure of their administration by the EU bodies
- Ensure more active participation of participants of the Ukrainian innovation ecosystem in European research funding programs
- Promote the successful experience of Ukrainian scientists and researchers in EU research support programs
- Create a state fund to accumulate funds to support innovations within the framework of international consortia
- Improve opportunities for financing small and medium-sized innovative businesses in Ukraine

3

STRATEGIC AREAS FOR DIGITAL DEVELOPMENT OF INNOVATIONS

STRATEGIC FOCUS 1 - HUMAN CAPITAL DEVELOPMENT

Highly qualified specialists will form the basis for innovation in Ukraine

STRATEGIC AREAS FOR THE DIGITAL DEVELOPMENT STRATEGY FOR INNOVATION 2030

HUMAN CAPITAL DEVELOPMENT

NATIONAL SYSTEM OF INNOVATIONS

ECONOMIC INCENTIVES FOR INNOVATION

GOVERNMENT POLICY FOR SECTORAL SUPPORT TO INNOVATION INITIATIVES

The inadequate standard and quality of all levels of education in Ukraine, the loss of human resources and the outflow of talent caused by the full-scale invasion, as well as the lack of cooperation between educational institutions and the real economy, make it impossible to have sufficient HUMAN CAPITAL DEVELOPMENT to be actively involved in the creation of innovative products and the development of the innovation system

STRATEGIC FOCUS AREA GOAL

SECURITY

Increasing the number of highly qualified specialists will help protect peace by developing innovative solutions for the defence industry

POLITICAL

Fostering new talent that can systematically create startups and innovations will help strengthen Ukraine's role as an innovation leader

DIGITALIZATION

Further development of the digital economy will enable the emergence of highly skilled personnel capable of creating new digital services

ECONOMIC

Increasing the quality and quantity of human resources will ensure the sustainable creation of innovative products and economic growth of Ukraine

SOCIAL

Eliminate gender bias in education to ensure talent unleashing as well as equal opportunities to contribute to the innovation development

STRATEGIC FOCUS 2 - NATIONAL SYSTEM OF INNOVATIONS

Innovative processes will be boosted by deregulation of regulations and development of innovation infrastructure

STRATEGIC AREAS FOR THE DIGITAL DEVELOPMENT STRATEGY FOR INNOVATION 2030

HUMAN CAPITAL DEVELOPMENT

NATIONAL SYSTEM OF INNOVATIONS

ECONOMIC INCENTIVES FOR INNOVATION

GOVERNMENT POLICY FOR SECTORAL SUPPORT TO INNOVATION INITIATIVES

The Strategy focuses on creating regulatory and infrastructural opportunities to promote innovation due to the existing over-regulation of registration procedures, insufficient activity of the innovation infrastructure, low investment by manufacturing companies in innovation projects, weak coordination between authorities, and other challenges

STRATEGIC FOCUS AREA GOAL

SECURITY

Deregulation of legislation can simplify and accelerate the process of implementing innovative solutions in the field of security and defence

POLITICAL

Develop innovative infrastructure for higher education institutions and create an environment for cross-border cooperation

DIGITALIZATION

Simplify administrative procedures will enable the development of digital services using chatbots, AI systems, etc.

ECONOMIC

Innovative infrastructure activities will facilitate the commercialization of science and high-tech production

SOCIAL

Industry 4.0 practices can provide barrier-free access for the public to participate in the production process

STRATEGIC FOCUS 3 - ECONOMIC INCENTIVES FOR INNOVATION

Ukraine will promote the implementation of R&D-projects through public funding and by attracting venture capital investments

STRATEGIC AREAS FOR THE DIGITAL DEVELOPMENT STRATEGY FOR INNOVATION 2030

HUMAN CAPITAL DEVELOPMENT

NATIONAL SYSTEM OF INNOVATIONS

ECONOMIC INCENTIVES FOR INNOVATION

GOVERNMENT POLICY FOR SECTORAL SUPPORT TO INNOVATION INITIATIVES

The successful implementation of innovative ideas and the introduction of innovative products are complicated by the limited financial resources of inventors, insufficient funding for institutions that support innovative projects, and the lack of a developed venture capital market. Furthermore, Ukraine also needs to ensure that its regions are able to realize their competitive potential

STRATEGIC FOCUS AREA GOAL

SECURITY

Prioritize funding for defence projects will increase the number and accelerate the development of innovations aimed at ensuring peace

POLITICAL

Establishing cooperation between the regions of Ukraine and the EU will strengthen the innovation and technological capabilities of the Ukrainian brand

DIGITALIZATION

Funding sufficiently innovative projects in priority areas will accelerate the creation of solutions for the digital economy

ECONOMIC

Attracting foreign venture capital for innovation and facilitating access to the capital market will boost Ukraine's economic development

SOCIAL

Providing access to funding and mentoring programs for women innovators will increase the differentiation of the innovation ecosystem

STRATEGIC FOCUS 4 - GOVERNMENT POLICY FOR SECTORAL SUPPORT TO INNOVATION INITIATIVESTECHNOLOGY INDUSTRIES ARE TO BE PRIORITIZED AND TAKEN INTO ACCOUNT IN THE STRATEGY

STRATEGIC AREAS FOR THE DIGITAL DEVELOPMENT STRATEGY FOR INNOVATION 2030

HUMAN CAPITAL DEVELOPMENT

NATIONAL SYSTEM OF INNOVATIONS

ECONOMIC INCENTIVES FOR INNOVATION

GOVERNMENT POLICY FOR SECTORAL SUPPORT TO INNOVATION INITIATIVES

The successful implementation of innovative ideas and the introduction of innovative products are complicated by the limited financial resources of inventors, insufficient funding for institutions that support innovative projects, and the lack of a developed venture capital market. Furthermore, Ukraine also needs to ensure that its regions are able to realize their competitive potential

STRATEGIC FOCUS AREA GOAL

SECURITY

Ukraine will transform defense technologies into a global intelligent national security operating system. This will allow to be able to constantly support the development of unique technological solutions for the protection of the state, develop the Ukrainian economy, and have one of the most technologically advanced armies in the world. Innovations will contribute to a higher level of security and defense capabilities, as well as economic development, creating powerful strategic partnerships with NATO and EU member states in the field of defense technologies

POLITICAL

Ukraine will strengthen its position as the most innovative, digital and economically capable state to meet the challenges of the future. Ukraine is one of the world's centers of innovation, actively integrating into the European space, becoming a key innovation partner of the EU and the global innovation ecosystem

DIGITALIZATION

Ukraine will become a leader in digital transformation in the world, providing the most effective transparent digital governance, as well as the most convenient digital services to ensure maximum mobility and freedom of citizens. The country will create an export-oriented ecosystem of digital solutions that will be implemented in other countries as an example of successful digital transformation

ECONOMIC

Ukraine will create a powerful innovation infrastructure that will allow the development of high-tech industries, including semiconductor technologies, space industry, unmanned vehicles, green technologies, etc., which will increase the competitiveness of the economy. The country will become a regional hub for technological solutions, actively integrating into global innovation value chains

SOCIAL

The state will ensure quality education, development of innovations in healthcare, agriculture and biotechnology, which will lead to an increase in living standards and the creation of new opportunities for self-realization of citizens. Special emphasis will be placed on the inclusiveness of innovations, ensuring equal opportunities and supporting talented youth

INFRASTRUCTURE

Ukraine will form a modern innovation ecosystem with a developed network of competence centers, science parks, technology clusters and incubators that will ensure effective commercialization of scientific developments and technology transfer. Special attention will be paid to creating international partnership networks and attracting global investment in Ukrainian innovation projects

3.1

STRATEGIC FOCUS – HUMAN CAPITAL DEVELOPMENT

THERE ARE FOUR STRATEGIC GOALS TO BE ACHIEVED TO ENSURE THE DEVELOPMENT OF HUMAN CAPITAL IN THE CONTEXT OF THE INNOVATION ECOSYSTEM OF UKRAINE

Human capital development

STRATEGIC GOAL 1

Transform the system of preschool and complete general secretary education into a reasonable basis for an innovative ecosystem

High quality education contributes to the growth of innovation, creates competitive advantages for the innovation system and has a positive impact on productivity

STRATEGIC GOAL 2

Create conditions for transforming vocational education institutions into an integrated part of the innovation ecosystem

The availability and involvement of trained specialists in innovations will contribute to the successful formation of Ukraine's own technological and production chains

STRATEGIC GOAL 3

Transform higher education and research institutions into innovation development centers deeply integrated into market and business

Higher educational and scientific institutions of Ukraine should become centers of scientific progress and encourage innovation through technology transfer and interaction with business

STRATEGIC GOAL 4

Retain and attract human capital

The availability of highly qualified human capital is one of the key elements and driving forces behind the development of the innovation ecosystem

STRATEGIC GOAL 1. TRANSFORM THE SYSTEM OF PRESCHOOL AND COMPLETE GENERAL SECRETARY EDUCATION INTO A REASONABLE BASIS FOR AN INNOVATIVE ECOSYSTEM

Strategic focus – human capital development

Despite the positive results of government policy in reforming general secondary education, the challenges of the COVID-19 pandemic and the military aggression have significantly reduced the capacity of the education system

KEY CHALLENGES

Basic literacy skills[1] :

66%
of schoolchildren study natural sciences

58%
of schoolchildren are math

Ukrainian schoolchildren lagging behind the OECD average:

1,75 years
natural science literacy

1,5 poky
math literacy

26%
Women in STEM in Ukraine

Underrepresentation of women due to gender stereotypes and poor teaching

Online learning

has caused a decline in the quality of education and competencies of students in Ukraine

🎯 TASKS TO ACHIEVE THE GOAL

- Ensure the implementation of the New Ukrainian School concept, promote offline learning
- Develop digital, entrepreneurial, scientific and other key competencies in students, to motivate them to do independent research
- Encourage cooperation with enterprises by involving practitioners in teaching and skills counseling
- Create informational and entertainment content in the media to interest students in mathematical and applied disciplines
- Raise the prestige of teachers profession, including through financial incentives
- Introduce gender-sensitive educational courses to overcome gender bias

[1]According to the PISA-2022 study in 18 regions of Ukraine, among Ukrainian schoolchildren aged 15

STRATEGIC GOAL 2. CREATE CONDITIONS FOR TRANSFORMING VOCATIONAL EDUCATION INSTITUTIONS INTO AN INTEGRATED PART OF THE INNOVATION ECOSYSTEM

Strategic focus – human capital development

The prevailing challenges for vocational education institutions limit the ability of their teaching staff and students to participate in the innovative development of Ukraine

KEY CHALLENGES

- Negative stereotypes about vocational education
- Gender stereotypes about women in vocational education institutions
- Mismatch of specialists with market needs due to the lack of cooperation between vocational schools and higher education institutions and business representatives
- Poor quality of the vocational education system

🎯 TASKS TO ACHIEVE THE GOAL

- Create regulatory, administrative and communication prerequisites for:
  - Integration of vocational education institutions into sectoral innovation environments
  - Establishing connections with businesses
- To promote the improvement of the material and technical base of vocational education institutions by:
  - International technical assistance
  - Donor and business coordination
- Involve vocational education institutions in studying the labor market and adapting educational programs to market needs
- Support the exchange of information between institutions on research and development

STRATEGIC GOAL 3. TRANSFORM HIGHER EDUCATION AND RESEARCH INSTITUTIONS INTO INNOVATION DEVELOPMENT CENTERS DEEPLY INTEGRATED INTO MARKET AND BUSINESS

Strategic focus – human capital development

Due to regulatory, organizational, and other challenges, only six Ukrainian higher education institutions were included in the list of the world's Top 1000 higher education institutions according to the QS World University Rankings 2023

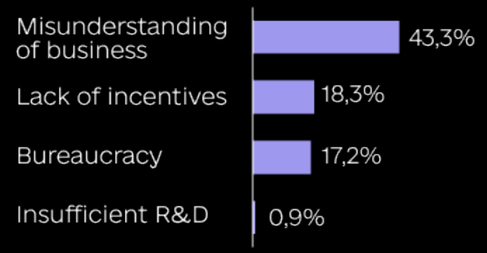
KEY CHALLENGES

1. Lack of financial autonomy
2. Regulatory barriers to HR policy
3. Limited possibilities for disposing of real estate
4. Use and tolerance of plagiarism, which creates a disrespectful attitude to IP
5. Low level of interaction with business

FORMS OF COOPERATION[1]:

36,8%	9,9%	0,7%
Student internships	Joint initiatives	Acquisition of patent licenses

REASONS[2]:



🎯 TASKS TO ACHIEVE THE GOAL

- Create platforms for cooperation with business based on higher education institutions that will work on business-relevant R&D
- Develop a system of organizational, social and financial incentives for scientists who initiate startups and spin-off companies based on R&D
- Use incentives to encourage higher education and research institutions to create innovations
- Remove bureaucratic barriers to cooperation between higher education and research institutions and the private sector
- Establish Dia.Business branches at higher education institutions to help with technology transfer
- Promote gender-responsive teaching practices to eliminate gender bias

[1] 52.6% of respondents indicated some other undisclosed forms of cooperation
[2] Share of respondents among academics, small and medium-sized businesses, and startups

STRATEGIC GOAL 4. RETAIN AND ATTRACT HUMAN CAPITAL

Strategic focus – human capital development

The enormous loss of human potential due to the full-scale aggression requires urgent measures to return and attract human capital from abroad

KEY CHALLENGES

NEED TO RETAIN TALENT IN UKRAINE

Years of low funding for science have led to an outflow of qualified personnel

POOR COMMUNICATION WITH UKRAINIANS ABROAD

State policy should be aimed at creating incentives for researchers and innovators to return to Ukraine

LOW LEVEL OF FOREIGN TALENT ATTRACTION

Programs for attracting foreigners have been introduced in the OECD and are relevant for the development of innovations in Ukraine

🎯 TASKS TO ACHIEVE THE GOAL

- Conduct a study of the business and scientific environment and prepare a list of specialists required for the development of the national innovation ecosystem
- Create a support program for Ukrainians who are ready to return to Ukraine to help them find jobs, housing, educational institutions, psychological support, etc.
- Intensify contacts with innovators and startup founders of Ukrainian origin living abroad. Integrate them into innovation clusters, business incubators, science parks, etc.

3.2

STRATEGIC FOCUS - NATIONAL INNOVATION SYSTEM

ENHANCE THE EFFICIENCY AS WELL AS THE EFFECTIVENESS OF THE NATIONAL INNOVATION SYSTEM THROUGH THE IMPLEMENTATION OF SEVEN STRATEGIC GOALS (1/2)

STRATEGIC GOAL 5

Improve coordination and cooperation at the level of innovation policy making and implementation

↓

The proper implementation of innovation policy requires strengthening the role and functioning of the relevant coordinating authorities

STRATEGIC GOAL 6

Legal regulation of the national innovation ecosystem elements

↓

Innovative companies will be able to find support and a favorable environment for growth within science parks, innovation clusters, etc.

STRATEGIC GOAL 7

Create regulatory and infrastructural opportunities for efficient technology transfer

↓

Establishing effective operation of technology transfer centers will facilitate their systematic implementation in the real sector of the economy

STRATEGIC GOAL 8

Build capacity to create knowledge-intensive innovations

↓

Modernization and implementation of tools to support the scientific community will help create the right conditions for innovation

ENHANCE THE EFFICIENCY AS WELL AS THE EFFECTIVENESS OF THE NATIONAL INNOVATION SYSTEM THROUGH THE IMPLEMENTATION OF SEVEN STRATEGIC GOALS (2/2)

STRATEGIC GOAL 9

Provide protection, commercialization and enforcement of intellectual property

An effective system of intellectual property rights protection protects the material rights of innovators and creates additional incentives for investment in R&D

STRATEGIC GOAL 10

Introduce the Industry 4.0 technological approach to support innovation activities

The introduction of Industry 4.0 practices with a focus on technology and process optimization will support higher education institutions in making the transition from traditional production to flexible and efficient production

STRATEGIC GOAL 11

Achieve cross-cutting deregulation in areas of innovation

Deregulation of common areas for all innovation activities will enhance the ability to achieve the goals set out in the Strategy and contribute to the overall scientific and technological progress

STRATEGIC GOAL 5. IMPROVE COORDINATION AND COOPERATION AT THE LEVEL OF INNOVATION POLICY MAKING AND IMPLEMENTATION

Strategic focus - national innovation system

Innovation policy making is distributed among many bodies: The Ministry of Education and Science, the Ministry of Economy, the Ministry of Digital Transformation, the Ministry of Strategy, the Innovation Development Fund, and others, which creates a need for coordination between them

KEY CHALLENGES

POOR COORDINATION BETWEEN THE AUTHORITIES

Creates the need to strengthen the role of coordinating bodies, in particular, to restart the Innovation Development Council and strengthen the role of CDTO

PRIORITIZATION OF INNOVATION POLICY

The current challenges of the full-scale invasion and restoration of the country require updating the priority areas

ALLOCATION OF RESOURCES FOR INNOVATION DEVELOPMENT

The need to focus resources on critical national security and defence tasks, as well as to take into account global trends in innovation

🎯 TASKS TO ACHIEVE THE GOAL

- Resume the work of the Innovation Development Council, organize its work plan, and ensure that it conducts an examination of draft regulations
- Extend the powers of deputy heads of executive authorities on digital development to the field of innovation
- Appoint a responsible body for implementing the innovation policy
- Approve a new system of priority areas for the development of science and technology aimed at post-war reconstruction
- Organize the implementation of the Roadmap for Science, Technology and Innovation to achieve the Sustainable Development Goals

STRATEGIC GOAL 6. LEGAL REGULATION OF THE NATIONAL INNOVATION ECOSYSTEM ELEMENTS

Strategic focus - national innovation system

Ukraine's innovation infrastructure can become an environment for cooperation and support for business, startups, and science. However, its insufficient capacity does not allow higher education institutions to achieve the expected level of innovative development

KEY CHALLENGES

Number of innovation-active enterprises in 2023:

-56,2% compared to 2020

In addition, only 6.5% of companies implemented innovations

The total value of Ukrainian startups in 2022:

-16,3% compared to 2021

However, since 2017, the figure has increased about 9 times

Insufficient level of innovation infrastructure activity:

SCIENCE PARK

only 6 out of 40 registered for 2023 were active

TECHNOLOGY PARKS

lack of performance indicators and proper support

INNOVATION PARKS

no legislative regulation

BUSINESS INCUBATORS

often focusing only on training, not on startup development

🎯 TASKS TO ACHIEVE THE GOAL

- Adopt a comprehensive regulation that clearly establishes the place of relevant instruments in the national innovation system
- Abolish the technology parks tool and unify it with science park formats and Industry 4.0 approaches
- Implement pilot projects to support the purchase of critical equipment within science parks for applied research
- Promote the creation of competence centers and innovation clusters in priority sectors and facilitate the interaction of all stakeholders

STRATEGIC GOAL 7. CREATE REGULATORY AND INFRASTRUCTURAL OPPORTUNITIES FOR EFFICIENT TECHNOLOGY TRANSFER

Strategic focus - national innovation system

The primary goal of technology transfer centers, i.e., to promote innovation by establishing links between science and business, has not been achieved in Ukraine due to their inefficient operation

KEY CHALLENGES

Net income of institutions that carried out technology transfer:

6 times lower

In 2022 compared to 2021

Average share of expenditures on financial incentives for authors:

15,2%

from income received under technology transfer agreements in 2022

SPECIALIZED TECHNOLOGY TRANSFER CENTERS:

- Interregional office for for knowledge and technology transfer
- Odesa Center
- Kharkiv Center

Only the Odesa Center is fully operational, while the other two are not effective due to the lack of proper interaction between the participants in the technology transfer process.

🎯 TASKS TO ACHIEVE THE GOAL

- Improve legislation on technology transfer, including deregulation in this area
- Establish and ensure the effective functioning of technology transfer offices that will provide IP services:
  - patenting
  - support of licensing
  - conducting technology assessment
  - creation of an innovative project

  etc.
- Provide opportunities for quality specialized education and knowledge improvement for IP management and technology transfer

STRATEGIC GOAL 8. BUILD CAPACITY TO CREATE KNOWLEDGE-INTENSIVE INNOVATIONS

Strategic focus - national innovation system

Scientific products of Ukraine have a higher-than-average specialization among OECD countries in computer science and energy, which suggests a sufficient basis for the development of knowledge-intensive innovations if the challenges are addressed

KEY CHALLENGES

FULL-SCALE INVASION

- Loss of scientific potential
- Destruction of infrastructure
- Falling demand for R&D

THE TENDENCY TO REDUCE R&D CAPABILITIES

In 2023 compared to 2010:

3,9%
Share in the total number of scientists

7,6%
Share of employees with terminated labor relations

LOW NUMBER OF YOUNG SCIENTISTS

In 2023 compared to 2010:

-71,0%
Number of researchers

-58,0%
Number of R&D institutions

🎯 TASKS TO ACHIEVE THE GOAL

- Support funding for science parks and higher education institutions in terms of R&D activities with a focus on priority areas
- Introduce funding programs for joint innovation projects between business and academia, with the condition that at least 50% of the funding is allocated to Ukrainian scientists
- Increase the share of project funding for science based on transparent competitions
- Improve the mechanism of forming a state order for the most important scientific developments and products
- Improve the methods of collecting statistical data on the implementation of innovations and IP objects in the real sector of the economy

STRATEGIC GOAL 9. ENSURE PROTECTION, COMMERCIALIZATION AND ENFORCEMENT OF INTELLECTUAL PROPERTY

Strategic focus - national innovation system

Enabling innovation by facilitating access to intellectual property (IP) services requires introducing digital technologies and integrating modern IT solutions

KEY CHALLENGES

- Limited access to up-to-date information on IP rights: status and scope of rights, their restrictions, transfer
- The need to simplify administrative operations with large volumes of patent information
- The need to reduce the time and improve the quality of information exchange with international IP rights classifiers

🎯 TASKS TO ACHIEVE THE GOAL

- Introduce a pilot project for the registration of the facts of granting a license to higher educational institutions to use IP assets (license) using blockchain technology
- Develop a comprehensive system that integrates AI to automate the processes of creating, filing, and analyzing IP applications by:
  - development of the terms of reference
  - seeking additional funding from partners for development
- Create chatbots using AI that:
  - Provide advice to applicants on IP issues
  - Assist in filling out forms and explaining procedures in real time

STRATEGIC GOAL 10. INTRODUCE THE INDUSTRY 4.0 TECHNOLOGICAL APPROACH TO SUPPORT INNOVATION ACTIVITIES

Strategic focus - national innovation system

Further developments in high-tech industrial products (robotics, autopilot systems, smart homes, 3D printers, etc.) could help Ukraine rise in the global industrial development rankings

KEY CHALLENGES

EARLY DEINDUSTRIALIZATION

the decline in production in Ukraine amid the opening of the foreign market, prevented the transition to the Industry 4.0 practices

TWO CENTERS 4.0

continued to operate in Ukraine based on higher education institutions in 2023, compared to three that operated in 2019

Decline in industrial production in Ukraine:

-36,7%

in 2022 compared to 2021

Percentage of industrial companies investing in innovative projects:

0,17%

in 2021 as a share of GDP

🎯 TASKS TO ACHIEVE THE GOAL

- Conduct research on the implemented practices of Industry 4.0 and Industry 5.0
- Support the creation and development of Industry 4.0 implementation centers in the regions of Ukraine, in particular, factory-laboratories at higher educational institutions, to:
  - Improving the technical knowledge base
  - creation of experimental innovative products

STRATEGIC GOAL 11. ACHIEVE CROSS-CUTTING DEREGULATION IN AREAS OF INNOVATION

Strategic focus - national innovation system

Ukraine needs to implement deregulation solutions that will address and create better conditions for all areas of innovation

KEY CHALLENGES

CHALLENGING ADMINISTRATIVE BURDEN

Innovative projects involving budgetary institutions are subject to both budgetary, tax, and administrative laws

EXCESSIVE REGISTRATION PROCEDURES

In the innovation sector, in particular, technology transfer, there is an excessive complexity of registration procedures

LIMITED ACCESS TO INNOVATION INFRASTRUCTURE

Scientific and technological progress is being hindered by limited opportunities for scientists, startups, and businesses to collaborate and share knowledge

🎯 TASKS TO ACHIEVE THE GOAL

- Expand the list of activities to be stimulated by creating a legal regime for Diia.City
- Create a legal regime for Science.City to stimulate the creation of knowledge-intensive companies and startups, science parks and other joint ventures between public institutions and private companies
- Develop amendments to the legislation abolishing registration procedures in the field of innovation
- Conduct an explanatory and popularization campaign on the procedure for granting access to innovation infrastructure

3.3

STRATEGIC FOCUS - ECONOMIC INCENTIVES FOR INNOVATION

THE STRATEGY PROVIDES FOR AN INCREASE IN THE ECONOMIC INCENTIVES FOR INNOVATION BY ACHIEVING THREE STRATEGIC GOALS

STRATEGIC GOAL 12

Stimulate R&D and create a solid financial footing with limited resources

↓

Better access to direct government funding will stimulate research and innovation

STRATEGIC GOAL 13

Easier access to the capital market for small innovative businesses (startups)

↓

Make private capital available to innovators and higher education institutions to implement ambitious projects that do not require any direct government involvement

STRATEGIC GOAL 14

Effective regional innovation ecosystems based on the initial competitive advantages of the regions

↓

Balanced and equal development of the regions by identifying industries where they have competitive advantages will allow higher education institutions to develop innovations more effectively

STRATEGIC GOAL 12. STIMULATE R&D AND CREATE A SOLID FINANCIAL FOOTING WITH LIMITED RESOURCES

Strategic focus - economic incentives for innovation

Implementation of innovative projects is often hindered by insufficient financial resources, so it is necessary to stimulate R&D by providing direct government funding

KEY CHALLENGES

- Ukraine should provide access to direct funding for R&D projects in the form of grants or tax incentives

  The average OECD expenditure on R&D in the form of grants and tax incentives is 0.22% of GDP

THE TOTAL EXPENDITURES OF COUNTRIES ON R&D

🇩🇪 Germany – 3,11% of GDP
Focus on grants

🇫🇷 France – 2,19% of GDP
Focus on tax benefits

🇺🇦 Ukraine – 0,33% of GDP

- There are institutions in Ukraine that support innovative projects, but a lack of funding limits their capabilities

01 UKRAINIAN STARTUP FUND

supporting early-stage startups by providing grants on a competitive basis

02 STATE INNOVATIVE FINANCIAL AND CREDIT INSTITUTION

provision of loans, credits, participation in co-financing of R&D

03 SMALL INNOVATIVE BUSINESS SUPPORT FUND

project lending

🎯 TASKS TO ACHIEVE THE GOAL

- Allocate grants to support innovative projects in the industry identified as priorities by this Strategy

- Conduct an independent audit of the activities of the Ukrainian Startup Fund, the State Innovation Financial and Credit Institution, and the Small Innovative Business Support Fund. Based on the audit, ensure that:

  - funding at the required level
  - reorganization, in case of unsatisfactory level of fulfillment of statutory tasks

- Hold regular discussions with business and academia on the areas identified as priorities in this Strategy

STRATEGIC GOAL 13. EASIER ACCESS TO THE CAPITAL MARKET FOR SMALL INNOVATIVE BUSINESSES (STARTUPS)

Strategic focus - economic incentives for innovation

Venture capitalists' active involvement is directly correlated with the growth of R&D investment as well as the development of innovations, and it also contributes to the implementation of innovative projects without any government involvement or costs

KEY CHALLENGES

Lack of a sufficient number of venture capitalists in Ukraine, which prevents promising businesses from growing faster

01

The need to attract two types of venture capitalists who invest capital in innovative businesses in exchange for a share of shares:

- BUSINESS ANGELS ARE — individuals who invest small amounts of their own capital
- INDIVIDUALS WHO INVEST — legal entities that accumulate capital but are limited by the riskiness of investments. In Ukraine, there were 42 as of 2024

02

The need for government support for venture capitalists:

- 12 OUT OF 28 EU COUNTRIES provide tax incentives
- THE US AND EU have simplified access to the capital market

🎯 TASKS TO ACHIEVE THE GOAL

- Facilitate the attraction of foreign venture capital funds to the Ukrainian market through negotiations, strengthening the innovative brand of Ukraine, and disseminating information on preferential conditions for investing in small innovative enterprises
- Facilitate access to the stock market for small innovative enterprises through deregulation and de-bureaucratization
- Create an enabling environment for women entrepreneurs and innovators, ensuring their access to financial resources, mentoring programs and innovation networks
- Provide conditions for the provision of crowdfunding services[1]
- Hold events for the presentation of innovative projects, networking of innovators, scientists, startup founders and venture capitalists on the basis of science parks

[1]Services for attracting investments or loans through publicly available information systems on the Internet

STRATEGIC GOAL 14. EFFECTIVE REGIONAL INNOVATION ECOSYSTEMS BASED ON THE INITIAL COMPETITIVE ADVANTAGES OF THE REGIONS

Strategic focus - economic incentives for innovation

Smart specialization is a key goal of the Eastern Partnership in the Research and Innovation Section, the State Strategy for Regional Development for 2021-2027, and the National Economic Strategy 2030

KEY CHALLENGES

THE NEED TO DEVELOP AND IMPLEMENT REGIONAL PLANS FOR THE REASONABLE SPECIALIZATION OF UKRAINE'S REGIONS

SOLUTION

Connecting regions to the smart specialization platform, where they will be able to access best practices and consult with EU experts

BEST PRACTICES EXAMPLES

- Public discussion of the region's strengths with representatives of the innovation community
- Setting priorities based on the region existing achievements, needs and capabilities
- Utilizing the potential of interregional and cross-border cooperation

🎯 TASKS TO ACHIEVE THE GOAL

- Develop and start implementing regional development strategies based on smart specialization in all regions of Ukraine
- Ensure that all regions of Ukraine join the European Smart Specialization Platform (S3 Platform), which is a tool to support regions in developing and implementing their regional development strategies through:
  - Providing recommendations and examples of best practices
  - Provide access to the latest data from EU regions Interactive platforms that allow higher education institutions to identify and compare regions with similar characteristics, R&D investments, priority areas of public investment in innovation, etc.

3.4

STRATEGIC FOCUS - GOVERNMENT POLICY TO SUPPORT PRIORITY INNOVATION AREAS

CONCENTRATION OF AVAILABLE RESOURCES TO SUPPORT 14 MOST PROMISING TECH SECTORS WILL CREATE THE BASIS FOR THE NATIONAL INNOVATION ECOSYSTEM OF UKRAINE

The national innovation ecosystem is focused on the development of 14 technological industries, each of which has its own peculiarities and unique characteristics. The fundamental principles and universal tools for supporting the development of innovations are applied equally to all industries, which are designed to provide a solid foundation for innovative economic development

HOWEVER, IT IS ADVISABLE TO TAKE INTO ACCOUNT THE UNIQUE CHARACTERISTICS OF EACH INDUSTRY:

01 DEFENCE TECHNOLOGY (DEFENCE TECH)

02 MEDICAL TECHNOLOGIES (MEDTECH)

03 BIOLOGICAL TECHNOLOGIES (BIOTECH)

04 TECHNOLOGIES IN GOVERNANCE (GOVTECH)

05 AGRICULTURAL TECHNOLOGIES (AGROTECH)

06 EDUCATIONAL TECHNOLOGIES (EDTECH)

07 SEMICONDUCTOR TECHNOLOGIES (SEMICONDUCTORS)

08 CYBERSECURITY (SECURE CYBER SPACE)

09 GREEN TECHNOLOGIES (GREENTECH)

10 IMMERSIVE TECHNOLOGIES (XR)

11 ARTIFICIAL INTELLIGENCE (AI)

12 UNMANNED VEHICLES (UV)

13 SPACE TECHNOLOGIES (SPACE TECH)

14 FLUID ECONOMY

FRAMEWORK OF SECTORAL STRATEGIES

APART FROM THE GENERAL STRATEGY, EACH DIRECTION HAS A SECTORAL STRATEGY THAT DEFINES SPECIFIC GOALS, TASKS, AND MEASURE OF EACH SECTOR, WHICH WILL BE AVAILABLE DURING THE FIRST QUARTER OF 2025

FOR ORIENTATION AND EASE OF UNDERSTANDING THE STRUCTURE AND APPROACHES TO PRESENTATION, A FRAMEWORK OF SECTORAL STRATEGIES FOR EACH DIRECTION HAS BEEN ADDED

DEFENSETECH

MISSION OF THE DIRECTION:

Ukraine will transform defense technologies into a global intellectual operational system of national security

- UNMANNED WEAPON SYSTEMS
- BIOLOGICAL AND GENETIC ENGINEERING TECHNOLOGIES
- AI AND MACHINE LEARNING IN DEFENSE
- MODERN ELECTRONICS AND ADVANCED MATERIALS
- SENSORS AND DATA ACQUISITION
- ENERGY SYSTEMS
- SPACE TECHNOLOGIES FOR DEFENSE
- DEVELOPMENT OF INNOVATIVE CYBER DEFENSE SYSTEMS

STRATEGIC GOAL 15. ENSURE FULL UTILIZATION OF SCIENTIFIC, HUMAN AND TECHNICAL POTENTIAL OF UKRAINE IN THE FIELD OF MILITARY INNOVATIONS

DEFENCE TECHNOLOGIES (DEFENCE TECH)

General review of the industry sector

FEASIBILITY OF INNOVATIVE DEVELOPMENT OF THE INDUSTRY

The armed aggression of the russian federation against Ukraine has led to a multiple increase in demand for all types of weapons systems, equipment and machinery. The high intensity of hostilities, the volatility of the situation at the front, and the lack of technological parity have created a need for constant adaptation of existing weapons and military equipment and the search for new, asymmetric solutions

- The main customer and user of innovative weapons and military equipment in Ukraine is the State:

  MINISTRY OF DEFENCE MIA DIU

- Procurements of the government in the defence area include research and development, the most advanced weapons, as well creation and modernization of production facilities

- Due to the need to increase the pace of military innovations development, new institutions have emerged:

  Brave 1 – a cluster for the defence technologies development

  The Army of Drones – Initiative to support the development of UAV

  Accelerator of the Ministry of defence – a tool for optimizing work with innovative projects

  Ukrainian Startup Fund – helps innovative projects and tech startups raise funds

- The passport of the budget program in 2022 was as follows

  22 RESEARCH AND DEVELOPMENT PROJECTS WORTH ₴0.9 BILLION

- Number of AUV manufacturers

  INCREASED 10 TIMES

  compared to the early 2022

STRATEGIC GOAL 15. ENSURE FULL UTILIZATION OF SCIENTIFIC, HUMAN AND TECHNICAL POTENTIAL OF UKRAINE IN THE FIELD OF MILITARY INNOVATIONS

DEFENCE TECHNOLOGIES (DEFENCE TECH)

Strengths and weaknesses, opportunities and threats

STRENGTHS

- Developing platforms, clusters and initiatives that provide financial, organizational and technical support to innovators
- Steady demand for military innovation due to the need to modernize weapons and military equipment
- Deregulation of legislation, which allowed the traditional defence sector to become more accessible to private business

WEAKNESSES

- Insufficient production of components for defence tech, making Ukraine dependent on imports
- Creating defence orders based on the interests of technology developers, not the needs of the end user
- Long development of the first prototypes of innovative solutions due to the lack of specific knowledge on the preparation of design documentation for the state customer

OPPORTUNITIES

- Defence-tech solution developers can strengthen their resource capacity through cooperation within clusters
- Scale up the production of successful defence tech solutions using soft loan programs
- Establish sustainable cooperation with Ukraine's international partners for the joint development and production of critical components of weapons systems and military equipment

THREATS

- The systemic shortage of highly qualified personnel, in particular engineers, may hinder the active development of defence tech
- Lack of experience of interaction between private business and the state customer, in particular in the defence sector
- Lack of working capital to finance R&D and allocation of limited resources to low-potential projects

STRATEGIC GOAL 15. ENSURE FULL UTILIZATION OF SCIENTIFIC, HUMAN AND TECHNICAL POTENTIAL OF UKRAINE IN THE FIELD OF MILITARY INNOVATIONS

DEFENCE TECHNOLOGIES (DEFENCE TECH)

Tasks for the industry development in Ukraine

THE STRATEGIC GOAL IS TO BE ACHIEVED THROUGH THE IMPLEMENTATION OF 9 TASKS

01 Involve more civilian developers in the defence innovation and improve their professional level

02 Identify priority defence areas for R&D and direct funding, technology creation and reproduction

03 Establish a higher education establishment specializing in defence innovation to train professional staff

04 Develop a network of defence technology centers to provide knowledge, resources and space for new projects

05 Create a qualified customer for military innovations that will complement the existing innovation management system through public procurement

06 Establish an interagency working group to promptly improve policies in areas related to the defence industry

07 Introduce programs to provide preferential loans to scale up production of successful military equipment

08 Introduce a program of state guarantees for producers who do not have collateral

09 Introduce an “open door” regime for Western developers to establish research centers in Ukraine

FRAMEWORK OF SECTORAL STRATEGIES

REGULATORY AND LEGAL FRAMEWORK

PRIORITY

- Adoption of 10+ draft laws regulating the development of defense technologies, including regular innovative procurement
- Development of an intellectual property protection system in the DefenseTech sector
- Launch of a comprehensive system for defense R&D project support, enabling cooperation with international partners

OTHER TASKS

- Creation of a unified information system for coordinating interagency cooperation

INFRASTRUCTURE

PRIORITY

- Creation of 10+ regional military technology testing centers
- Launch of 5+ modernized test sites for the implementation of autonomous systems and robotics
- Operation of a network of 20+ laboratories for pilot testing with access to specialized equipment

OTHER TASKS

- Organization of 10+ R&D centers at universities for research in defense technologies

MARKET DEVELOPMENT

PRIORITY

- Creation of 10+ export-oriented products in the DefenseTech sector

OTHER TASKS

- Support for 50+ startups entering international markets

FRAMEWORK OF SECTORAL STRATEGIES

EDUCATION AND WORKFORCE

PRIORITY

- Training of 1,000+ specialists in the field of defense technologies
- Launch of 5+ educational programs with international partners

OTHER TASKS

- Organization of 50+ hackathons and competitions for innovation development
- Operation of a specialized higher education institution for training DefenseTech professionals

SCIENTIFIC RESULTS AND INNOVATIONS

PRIORITY

- Implementation of 10+ solutions in the defense sector
- Development of 15+ autonomous systems and robotic solutions

OTHER TASKS

- Registration of 20+ patents, including new materials and cyberspace
- Launch of 15+ innovative projects with new materials used in defense

PARTNERSHIPS

PRIORITY

- Signing of 10+ international memorandums with defense companies
- Implementation of 15+ joint projects with NATO and the EU

OTHER TASKS

- Establishment of the EU Defense Innovation Office for cooperation coordination

FRAMEWORK OF SECTORAL STRATEGIES

FINANCIAL INSTRUMENTS

OTHER TASKS

- Engagement of 10+ international financial partners to support projects
- Creation of a system for financial incentives for innovative procurement

ORDER SYSTEM

PRIORITY

- Functioning of a unit for innovative procurement that implements technologies via Brave 1
- Implementation of 50+ innovative projects through innovative procurement

OTHER TASKS

- Reduction of technology implementation time by 50% through process optimization
- Launch of a system for monitoring innovative solutions in procurement

PRIORITY R&D AREAS

OTHER TASKS

- Formation of a current list for critical technologies for defense
- Development of 10+ roadmaps for the development of key R&D areas
- Laucnh of 30+ strategic R&D projects in AI, cybersecurity, and new materials
- Operation of technology trend monitoring system that defines innovation priotities

MEDTECH

MISSION OF THE DIRECTION

Ukraine is creating an innovative healthcare system that transforms technology into a tool for restoring human potential and restoring quality of life through a personalized approach to physical, mental and social health

MEDICAL DEVICES

Bionic/innovative prosthetics, skin repair solutions, technologies for improving mental health

THE USE OF AI IN HEALTHCARE

IN VITRO DIAGNOSTICS

DIGITAL HEALTH,

In particular, mobile applications for health monitoring

STRATEGIC GOAL 16. TRANSFORM INNOVATIVE IDEAS INTO MEASURABLE BENEFITS FOR PATIENTS AND HEALTHCARE PROFESSIONALS BY STIMULATING RESEARCH

MEDICAL TECHNOLIGIES (MEDTECH)

General review of the industry sector

FEASIBILITY OF INNOVATIVE DEVELOPMENT OF THE INDUSTRY

In the context of the russian federation armed aggression against Ukraine, the medical technology sector is an important component of Ukraine national security. Medical technologies include in vitro diagnostics, medical devices and digital health[1]. Technological superiority in this area will allow saving more lives of Ukrainian soldiers and civilians, preserving human capital and strengthening its resilience

THE VALUE OF THE UKRAINIAN MARKET OF MEDICAL PRODUCTS IN 2022[2]

₴10,5 B

At the same time, the share of domestic producers of medical products is:

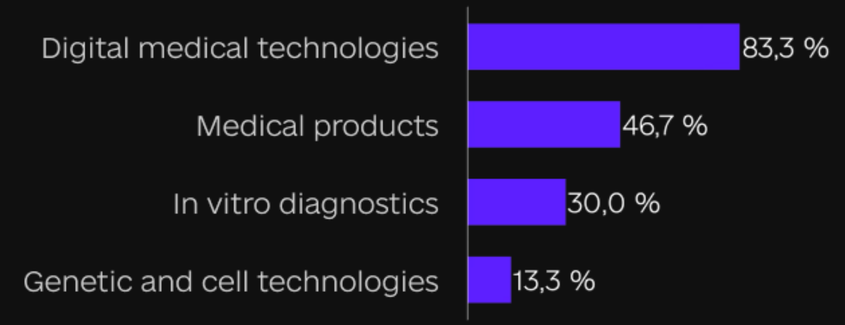
44% of all goods sold

57% of all packages sold

18% of monetary sales

Syringes and injectables, medical and surgical supplies are among the largest categories of products where Ukrainian manufacturers are present

PRIORITY CATEGORIES OF MEDICAL TECHNOLOGIES PROMISING FOR DEVELOPMENT IN UKRAINE[3]



[1] Includes mobile health apps, electronic health records, wearables, telemedicine and personalized medicine
[2] According to the analysis of the company's market research system SMD (Support in Market Development)
[3] Percentage of respondents among the interviewed medical technology experts

STRATEGIC GOAL 16. TRANSFORM INNOVATIVE IDEAS INTO MEASURABLE BENEFITS FOR PATIENTS AND HEALTHCARE PROFESSIONALS BY STIMULATING RESEARCH

MEDICAL TECHNOLIGIES (MEDTECH)

Strengths and weaknesses, opportunities and threats

STRENGTHS

- E-Health[1] and IT-infrastructure for development and implementation of medical technologies
- Promising Ukrainian startups, including the development of a bionic robotic arm роборуки[2], which was honored as one of the best inventions of mankind in 2022 by Time magazine
- The current potential of Ukraine for the local production of prostheses and rehabilitation equipment

WEAKNESSES

- Overregulation of the Ukrainian market due to the complex process of certification of medical technologies and the lack of relevance of the regulatory framework for clinical trials
- Limited access to capital and undifferentiated financing in the healthcare system
- Low competitiveness due to the lack of high-tech medical technology production

OPPORTUNITIES

- Draft the Health Care System Development Strategy 2030, defining the necessary actions for the MedTech development
- Continue to introduce AI-based medical technologies for screening, diagnosis, diagnosis verification, and automatic medical data entry
- Broaden international cooperation in medical technology development and clinical research

THREATS

- Low purchasing power of the population and the lack of a separate budget for technology development in public healthcare institutions create unequal access to technology
- Strong competitive environment of foreign medical technology manufacturers
- Ukrainian legislation does not take into account international standards and quality certificates for medical technologies

[1]Electronic healthcare system of Ukraine for medical services record keeping automation and medical information management
[2] The invention of the Ukrainian startup Esper Bionics, which consists of 250 components and has sensors that read and process muscle activity and signals from the brain and translate them into movements

STRATEGIC GOAL 16. TRANSFORM INNOVATIVE IDEAS INTO MEASURABLE BENEFITS FOR PATIENTS AND HEALTHCARE PROFESSIONALS BY STIMULATING RESEARCH

MEDICAL TECHNOLIGIES (MEDTECH)

Tasks for the industry development in Ukraine

THE STRATEGIC GOAL IS TO BE ACHIEVED THROUGH THE IMPLEMENTATION OF 6 TASKS

01 Update the regulatory framework for conducting clinical trials of medical devices in accordance with EU requirements

02 Promote the expansion of local production of prostheses, care products for people with disabilities and rehabilitation equipment, their consumables

03 Introduce mobile apps for remote monitoring of patients' health

04 Implement AI-based solutions in healthcare

05 Develop innovative infrastructure for research and development activities in medical technologies

06 Expand international cooperation in the development of medical technologies, create partnerships with foreign universities, enterprises and science parks

FRAMEWORK OF SECTORAL STRATEGIES

DEREGULATION AND CREATION OF FAVORABLE CONDITIONS FOR THE MARKET

PRIORITY

- Introduce a fast track for certification of innovative medical solutions, such as bionic prostheses, skin repair materials, digital platforms for mental health
- Create a regulatory sandbox for testing innovative medical solutions
- Harmonization of standards with the EU to facilitate exports

OTHER TASKS

- Deregulation to simplify certification and registration of medical devices
- Simplification of procedures for clinical trials of innovative solutions
- Identification of key market players (start-ups, research centers manufacturers) to create a sustainable innovation ecosystem

DEVELOPMENT OF LOCAL PRODUCTION OF INNOVATIVE SOLUTIONS

PRIORITY

- Facilitate the launch of 1-3 Ukrainian production facilities for innovative bionic prostheses, including robotic limbs with sensors, with the support of grants, international funding and/or preferential taxation

OTHER TASKS

- Development of national standards for bionic prostheses with the participation of international experts
- Demonstrate successful Ukrainian cases on international platforms to attract investors from the US, EU and Asia

MATERIALS FOR SKIN REGENERATION

PRIORITY

- Facilitate the launch of 1-3 Ukrainian production facilities for skin regeneration materials through state support programs and international grants

OTHER TASKS

- Create a subsidy program for Ukrainian startups in the field of skin regeneration
- Presentation of demonstration cases to attract the attention of foreign partners

FRAMEWORK OF SECTORAL STRATEGIES

DIGITAL PLATFORMS FOR MENTAL HEALTH

PRIORITY

- Development of digital platforms to support mental health, including diagnostics, monitoring and counseling
- Integrate platforms into state rehabilitation programs for veterans, IDPs and other vulnerable groups

OTHER TASKS

- Updating standards for mental health innovation

LOCALIZATION OF FOREIGN PRODUCTION FACILITIES

PRIORITY

- Facilitate the localization of 1-2 production facilities of international companies in the field of bionic prostheses with a focus on high value-added components, such as sensors and microprocessors
- Develop and implement preferential conditions for international companies planning to localize production in Ukraine

OTHER TASKS

- Localization of production of innovative materials for skin regeneration through public-private partnership programs

VARIOUS

DEVELOPMENT AND IMPLEMENTATION 5+ AI SOLUTIONS FOR DIAGNOSTICS

PRIORITY

- Creation of a competence center for AI in medicine
- Integration of AI solutions into state medical programs

OTHER TASKS

- Certification of 10+ AI solutions for medical diagnostics

TELEMEDICINE

PRIORITY

- Creation of a national telemedicine platform
- Facilitate the implementation of 10+ remote monitoring services
- Development of standards for telemedicine services

OTHER TASKS

- Integration with European telemedicine networks

TECHNOLOGIES FOR RECOVERY

PRIORITY

- Promoting the development of 5+ innovative solutions for recovery
- Integration of VR/AR technologies into recovery processes

OTHER TASKS

- Creating a network of recovery innovation centers
- Implementation of digital recovery monitoring systems

FRAMEWORK OF SECTORAL STRATEGIES

DEVELOPMENT OF THE MARKET FOR BIONICS PROSTHESES COMPONENTS

PRIORITY

- Facilitate the launch of 1-2 production facilities for bionic prostheses, such as mechanical components, sensors and batteries
- Implementation of a state program of subsidies and grants for the development of this area

OTHER TASKS

- Cooperation with Ukrainian enterprises to develop innovative solutions in production of components
- Attracting international partners to supply high-tech equipment

ESTABLISHMENT OF A CENTER OF EXCELLENCE (COE)

PRIORITY

- Establishment of a CoE in the field of medical technologies for R&D, certification and scaling of innovative solutions

OTHER TASKS

- Establishing partnerships with universities, science parks and international research centers
- Integration into 3+ European research networks
- Participation in 10+ international clinical trials
- Creation of 5+ joint R&D projects
- Involvement of international experts for mentoring

INFRASTRUCTURE DEVELOPMENT AND INNOVATION ECOSYSTEM

CREATION/STRENGTHENING OF A MEDTECH CLUSTER

OTHER TASKS

- Formation of a cluster for the integration of start-ups, manufacturers and research institutions
- Opening innovation hubs for knowledge sharing and rapid commercialization of technologies
- Promoting the establishment of medical technology transfer centers

SUPPORT PROGRAMS FOR STARTUPS IN THE FIELD OF MEDTECH

LAUNCH OF GRANT PROGRAMS FOR STARTUPS IN AT LEAST THREE PRIORITY AREAS

- Bionic prostheses and prosthetics
- Materials for skin regeneration
- Digital platforms for mental health

- Providing financial support for 10+ startups through acceleration programs

EDUCATION AND WORKFORCE

PRIORITY

- Training of 1 000+ specialists in medical engineering
- Launch 2+ PhD programs in medical technologies

OTHER TASKS

- Creation of 5+ international internship programs
- Creating an online platform for professional development

BIOTECH

MISSION OF THE DIRECTION

Ukraine has become a center for biotechnological innovations that ensure the sustainable development of medicine, agriculture, end environmental restoration, contributing to the country's economic stability and ecological harmony

DEVELOPMENT OF BIOTECHNOLOGIES FOR SUSTAINABLE AGRICULTURE

BIOTECHNOLOGIES FOR QUALITY OF LIFE

STRATEGIC GOAL 17. CREATE INNOVATION INFRASTRUCTURE AND FAVOURABLE REGULATORY REGIME FOR THE DEVELOPMENT OF BIOLOGICAL TECHNOLOGIES

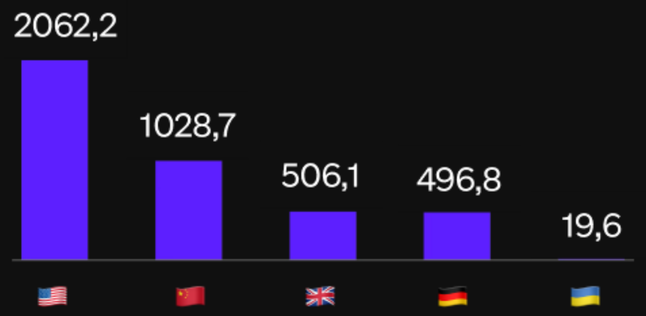
BIOLOGICAL TECHNOLOGIES (BIOTECH)

General review of the industry sector

FEASIBILITY OF INNOVATIVE DEVELOPMENT OF THE INDUSTRY

Biotechnology has been identified as one of the priorities for Ukraine innovative development. Biological technologies in the agricultural industry can solve the problem of soil restoration after the cessation of hostilities and demining, production of biofuels, bioliquids, biomass fuels, and environmental restoration technologies in Ukraine

TOTAL NUMBER OF PUBLICATIONS IN BIOLOGICAL SCIENCES[1] IN SCOPUS, THOUSAND PUBLICATIONS FOR 1996-2022



NUMBER OF PUBLICATIONS IN BIOLOGICAL SCIENCES[1] IN UKRAINE FOR 2022

2 090 publications

17,3%	Biochemistry
16,2%	Biotechnology
13,2%	Cell biology
9,9%	Molecular biology
43,4%	Other[2]

INSTALLED BIOENERGY CAPACITY IN 2022, GW

0,3	
7,3	
1,8	
11,7	

The low number of life sciences researchers in Ukraine points to the need for more active development of the biotechnology industry. However, in recent years, Ukraine has demonstrated prospects for the development of bioenergy, as the volume of installed capacities grew at a CAGR of 18.6% in 2018-2022, although it still remains below the level of European countries

[1] Includes publications in biochemistry, genetics and molecular biology
[2] Includes publications in biophysics and genetics

STRATEGIC GOAL 17. CREATE INNOVATION INFRASTRUCTURE AND FAVOURABLE REGULATORY REGIME FOR THE DEVELOPMENT OF BIOLOGICAL TECHNOLOGIES

BIOLOGICAL TECHNOLOGIES (BIOTECH)

Strengths and weaknesses, opportunities and threats

STRENGTHS

- Free access to natural resources and biodiversity in Ukraine contributes to effective R&D activities
- High development of the pharmaceutical industry in Ukraine, which serves as the basis for further implementation of new innovative solutions in the biopharmaceutical industry
- Availability of scientific potential, infrastructure and HEE for the development and production of biotechnology products

WEAKNESSES

- Insufficient financial, scientific and technical support from the state, as well as the lack of close interaction between the state and participants in the technological ecosystem
- Lack of extensive experience in the development and commercialization of biological technologies
- Instability of government policy and unpredictable changes in Ukrainian legislation

OPPORTUNITIES

- Facilitate the development of biotechnology enterprises in Ukraine through Ukraine's integration into the EU and harmonization of legislation
- Develop exports of Ukrainian biotechnology products through international cooperation
- Develop medical tourism in Ukraine by improving the quality of medical services through the introduction of biomedical technologies

THREATS

- The war in Ukraine creates a high risk of doing business and may lead to increased political and economic instability
- The outflow of human capital, in particular scientists and researchers, may hinder the active development of biotech
- Ukraine's low integration into the global scientific sphere and lagging behind global technological trends

STRATEGIC GOAL 17. CREATE INNOVATION INFRASTRUCTURE AND FAVOURABLE REGULATORY REGIME FOR THE DEVELOPMENT OF BIOLOGICAL TECHNOLOGIES

BIOLOGICAL TECHNOLOGIES (BIOTECH)

Tasks for the industry development in Ukraine

THE STRATEGIC GOAL IS TO BE ACHIEVED THROUGH THE IMPLEMENTATION OF 6 TASKS:

01 Conduct an audit of the existing innovative infrastructure in the field of biological technologies, as well as educational institutions, including the practicality and relevance of their programs

02 Upgrade the content of educational programs in the field of biological technologies, bring them closer to the market realities, invite representatives of private enterprises to shape the content of programs and their content

03 Create an active and integrated national innovation cluster in the field of biological technologies that will facilitate partnerships between HEE, enterprises, science parks and investors

04 Invest in new equipment and new innovation infrastructure, promoting the creation of a common infrastructure accessible to all members of the industry science park

05 Promote opportunities in the field of biotechnology in Ukraine among students through informational events and campaigns, internship programs and international exchanges

06 Broaden scientific cooperation and joint projects between members of the national ecosystem and foreign HEE, enterprises, and science parks

FRAMEWORK OF SECTORAL STRATEGIES

REGULATORY AND LEGAL FRAMEWORK

PRIORITY

- Hramonization of Ukrainian legislation with EU norms in biosafety and biotechnology regulation.
- Implementation of a transparent procedure for clinical trials.
- Reduction of the registration time for biotechnological products by 50%
- Introduction of a regulatory sandbox for testing innovations of Biotech startups
- Development of a regulatory framework for public-private partnerships in the Biotech sector.

OTHER TASKS

- Development of mechanisms for intellectual property protection on biotechnology
- Creation of tax incentives for investors in the biotechnology sector
- Development of a special legal regime Science. City for biotechnology

INFRASTRUCTURE

PRIORITY

- Creation of WINWIN BioTech CoE.
- Opening of bio-banks for storage and analysis of biological materials
- Promotion of intrastructure for collective use in research and development
- Implementation of an information platform. for coordination and industry infrastructure support

OTHER TASKS

- Establishment of 2-3 collective-use centers for universities and businesses
- Modernization of 5+ university laboratories
- Creation of 3+ R&D laboratories in partnership with business

MARKET OPENING AND DEVELOPMENT

PRIORITY

- Integration into Diia.City, including biotech companies as residents of Diia.City, with the development of a separate category for stimulating sectoral development
- Introduction of grant programs to support SMEs in the biotechnology sector

OTHER TASKS

- Expansion of the local market - support for innovations and the local sector through tax incentives, infrastructure programs, and stimulating demand for biotechnology in agriculture and healthcare
- Creation of a special fund to support Biotech startups focused on global innovation
- Launch of 10+ innovative Biotech products into international markets through certification and marketing programs

FRAMEWORK OF SECTORAL STRATEGIES

EDUCATION AND WORKFORCE

PRIORITY

- Implementation of 5+ internship programs for students in cooperation with businesses
- Organization of 10+ informational campaigns to promote biotechnology among youth

OTHER TASKS

- Training of 200+ new specialists in the field of biotechnology
- Conducting 20+ training sessions for lecturers and specialists in biotechnology
- Launch of 3+ new educational programs in partnership with private enterprises

SCIENTIFIC RESULTS AND INNOVATIONS

PRIORITY

- Implementation of 10+ projects for phytoremediation of contaminated lands
- Development/discovery/support of 3+ successful solutions for personalized medicine

OTHER TASKS

- Development/discovery/support of 15+ new innovative solutions in the field of biotechnology
- Registration of 20+ patents in the field of biotechnology (biomarkers, genetic development, biofuels, etc.)

PARTNERSHIPS

PRIORITY

- Integration of Biotech companies into Horizon Europe programs

OTHER TASKS

- Signing of 10+ international memorandums with universities, businesses, and scientific institutions
- Organization of an international biotechnology forum to attract investors and partners
- Formation of 5+ strategic partnerships with leading companies in the biotechnology sector
- Implementation of 5+ international R&D projects involving foreign experts

FRAMEWORK OF SECTORAL STRATEGIES

FINANCIAL INSTRUMENTS

PRIORITY

- Launch of a state grant program to support Biotech startups
- Engagement of 10+ international financial partners

OTHER TASKS

- Implementation of state guarantee mechanisms to attract private investments

ORDER SYSTEM

PRIORITY

- Launch of a unified electronic platform for coordinating public procurement
- Implementation of a transparent procedure for clinical trials

OTHER TASKS

- Establishment of a unit for innovative procurement of state projects in Biotech
- Implementation of 10+ public procurements for Biotech solutions
- Reduction of project implementation time through procurement by 30%
- Pilot testing of 5+ Biotech projects through state programs

GOVTECH

MISSION OF THE DIRECTION

Ukraine is creating the world's best digital governance system, where technology ensures maximum freedom and mobility for citizens and businesses

DIGITAL PUBLIC SERVICES

PROCESS AUTOMATION

DATA ANALYSIS SYSTEMS

DECISION-MAKING TOOLS

STRATEGIC GOAL 18. DEVELOP STATE CAPACITIES THROUGH THE INTRODUCTION OF TECHNOLOGIES IN THE FIELD OF GOVERNANCE

GOVERNANCE TECHNOLOGIES (GOVTECH)

General review of the industry sector

FEASIBILITY OF INNOVATIVE DEVELOPMENT OF THE INDUSTRY

The development of the GovTech will optimize public authorities, ensure more effective interaction with citizens and businesses, and increase the transparency of government institutions. In addition, the current challenges of war require maximum efficiency and speed of response from the state, which becomes an additional powerful incentive for further digitalization of all areas of public administration

KEY PLAYERS OF GOVTECH IN UKRAINE

THE STATE (REPRESENTED BY PUBLIC AUTHORITIES)	shapes the policy and strategy of the sector, acts as the main customer of GovTech projects
GOVTECH TEAMS	act as the executor of most government orders for the digitalization of services and systems
THE PUBLIC	acts as a user of GovTech projects and provides feedback
THE INTERNATIONAL COMMUNITY	fund the development of some GovTech projects, share their expertise and experience

MILESTONES OF GOVTECH DEVELOPMENT IN UKRAINE

2014	State Agency for E-Governance of Ukraine
2019	Ministry of Digital Transformation of Ukraine
2020	Introduction of the CDTO position
2022	Full-scale invasion
2024	Opening of a GovTech center in Ukraine

UKRAINE DEMONSTRATES SUCCESSFUL RESULTS IN THE DIGITALIZATION OF PUBLIC SERVICES. IN 2023, THE DIIA APP WAS USED BY MORE THAN 20 MILLION UKRAINIANS, WHO HAVE ACCESS TO MORE THAN 120 DIGITIZED PUBLIC SERVICES

STRATEGIC GOAL 18. DEVELOP STATE CAPACITIES THROUGH THE INTRODUCTION OF TECHNOLOGIES IN THE FIELD OF GOVERNANCE

GOVERNANCE TECHNOLOGIES (GOVTECH)

Strengths and weaknesses, opportunities and threats

STRENGTHS

- The existing demand and prioritization of digitalization by the government makes the market open and favorable for GovTech
- Sufficient funding for the development of new digital services, as funds are allocated from both the state budget and international technical assistance programs
- Developed IT infrastructure and highly qualified IT specialists facilitate the rapid implementation of GovTech projects

WEAKNESSES

- Staffing crisis in the middle and executive level due to the gap in working conditions between the private and public sectors
- Digital decisions are made on the basis of an ad hoc request without discussing the future of the system with users and taking into account the overall digitalization strategy
- Lack of budget to support and modernize already implemented digital services and systems

OPPORTUNITIES

- Develop exports of GovTech solutions and international cooperation to engage Ukraine in the global GovTech ecosystem
- Develop associations and platforms for cooperation between market players and discuss technological and bureaucratic aspects of developing and implementing GovTech solutions
- Approve standards for the entire software development cycle and a mechanism for launching pilot projects with simplified laws and regulations

THREATS

- A large number of bureaucratic processes and lack of standards for the development of technological solutions (SDLC)
- Political instability or changes in government priorities and initiatives can delay the implementation of digital solutions
- Fear of reputational risks and a lack of understanding and complexity of cooperation with the state can discourage private companies from participating in government IT projects

STRATEGIC GOAL 18. DEVELOP STATE CAPACITIES THROUGH THE INTRODUCTION OF TECHNOLOGIES IN THE FIELD OF GOVERNANCE

GOVERNANCE TECHNOLOGIES (GOVTECH)

Tasks for the industry development in Ukraine

THE STRATEGIC GOAL IS TO BE ACHIEVED THROUGH THE IMPLEMENTATION OF 11 TASKS:

01 Create a knowledge base and methodology for digitalization with a recommended level of obligation

02 Facilitate the launch of quality private or public-private GovTech training and education courses

03 Divide the structural units of public authorities into regulatory and legal activities and project management

04 Bring salaries in government departments closer to market levels

05 Improve the collection of open government data through analytical tools and processing methodologies

06 Launch an independent public assessment of satisfaction with digital services

07 Implement the transition from e-government to digital government by automating processes, including AI technology

08 Approve procedural standards for the entire software development cycle, as well as for the initiation, procurement, sale and launch of digital products

09 Create GovTech incubators to develop and test innovative solutions for government agencies

10 Promote the export of successful GovTech solutions by strengthening Ukraine's technological brand and developing international cooperation

11 Strengthen the capacity of government agencies and businesses to collect, analyze and use gender and other socially disaggregated data relevant to digital policy

FRAMEWORK OF SECTORAL STRATEGIES

REGULATORY AND LEGAL FRAMEWORK

PRIORITY

- Development and implementation of unified standards for the entire software development cycle
- Introduce a fast track for the implementation of innovative digital solutions in the field of governance (Mriia, use of AI, etc.)
- Creating a regulatory sandbox for testing innovative govtech solutions, including AI and XR
- Harmonization of standards with the EU to facilitate the export of govtech solutions

OTHER TASKS

- Define a clear structure and functions of public authorities for the development and implementation of legislation and project management
- Adoption of procedural standards for the preparation, procurement, sale and implementation of digital products and active involvement of the private sector
- Developing regulations and guidelines for collecting, integrating and analyzing data from various sources, including AI
- Implementation of advanced analytical tools for data processing and interpretation, launch of a full-fledged data-driven approach

INFRASTRUCTURE

PRIORITY

- Establishment of the WINWIN CoE of digital competences
- Establishment of the WEF GGTC Govtech Kyiv Centre
- Establishment of govtech incubators for the development and testing of innovative solutions in special test environments

OTHER TASKS

- Identification of key market players to create a sustainable innovation ecosystem

MARKET DEVELOPMENT

PRIORITY

- Integration of innovative solutions (private sector), including artificial intelligence, into less than 10 public services
- Establishing a mechanism for interaction between the private sector, developers and government agencies
- Launching independent public digitalization surveys to assess service satisfaction and the number of digitized services

OTHER TASKS

- Strengthening the private sector by supporting Ukrainian consortia and GovTech alliances

FRAMEWORK OF SECTORAL STRATEGIES

EDUCATION AND WORKFORCE

PRIORITY

- Establish a network of GovTech incubators in the 5 largest cities
- Launch a separate acceleration program for GovTech startups

OTHER TASKS

- Develop and implement regular training for civil servants on the use of data and analytical tools
- Strengthening the capacity of central executive authorities and state-owned enterprises to collect, analyze and use data
- Develop training programs for working with data disaggregated by gender and other social indicators

FINANCIAL INSTRUMENTS

PRIORITY

- Creation of a fund to support innovative projects in the field of governance (grants)

PARTNERSHIPS

PRIORITY

- Active promotion of Ukrainian GovTech solutions and expertise to the world through the Digital State UA platform

OTHER TASKS

- Create mechanisms for engaging staff of Ukraine's diplomatic missions abroad to promote Ukrainian business
- Development of Ukraine's digital and technological brand in the field of GovTech
- Integration with 3+ international GovTech platforms
- Participation in 10+ international GovTech projects
- Engaging international experts for mentoring / potentially creating a separate board
- Creation of 5+ joint R&D projects with international partners

THE SYSTEM OF ORDERS

OTHER TASKS

- Strengthen communication on competitions and tenders (in cooperation with international partners) to ensure greater involvement of Ukrainian business

AGROTECH

MISSION OF THE DIRECTION

Ukraine is a high-tech agricultural country where strong human capital, natural resources and technologies enhance Ukraine's competitive advantage in the context of global food security and environmental revival

- RESTORATION OF DEGRADED LAND
- AUTOMATED HARVESTING SYSTEMS
- PROCESSING OF AGRICULTURAL RAW MATERIALS WITH THE HELP OF TECHNOLOGY
- PHYTOREMEDIATION

STRATEGIC GOAL 19. INCREASE THE EFFICIENCY OF THE AGRICULTURE AND LAND MANAGEMENT SECTOR THROUGH INNOVATION

AGRICULTURAL TECHNOLOGIES (AGROTECH)

General review of the industry sector

FEASIBILITY OF INNOVATIVE DEVELOPMENT OF THE INDUSTRY

The agro-industrial complex has traditionally held an important place in the structure of Ukraine's economy, representing more than 10% of GDP and about 41% of exports in 2021. The development and implementation of new agricultural technologies, such as agrodrones, precision farming, the Internet of Things, automated agricultural machinery, etc., will have a particularly large effect on increasing the productivity of Ukraine's economy

THE DEVELOPMENT AND IMPLEMENTATION OF AGRO-INDUSTRIAL TECHNOLOGIES WILL BE CRUCIAL TO OVERCOME THE EXISTING CHALLENGES IN AGRICULTURE AND THE FOOD INDUSTRY.

KEY CHALLENGES OF THE AGRICULTURAL SECTOR THAT NEED TO BE OVERCOME THROUGH THE INTRODUCTION OF TECHNOLOGY

⚠️ MINING OF AGRICULTURAL FIELDS

The full-scale war made it impossible to safely use some of the fields

↓

Automation and use of agrodrones will facilitate demining

⚒️ OUTDATED AGRICULTURAL EQUIPMENT

Agricultural productivity in Ukraine lags behind by 20-30% compared to other countries

↓

Implementation of innovative agricultural equipment will increase productivity

🌱 OVERPRODUCTION OF PRIMARY AGRICULTURAL PRODUCTS

Ukraine produces more agricultural raw materials than it can consume or export

↓

Technologies will help to increase in-depth processing of agricultural products

💧 EXHAUSTIVE EXPLOITATION OF RESOURCES

May result in degradation of land and water resources

↓

Renewable sources, crop rotation, breeding are the way to ecological production

STRATEGIC GOAL 19. INCREASE THE EFFICIENCY OF THE AGRICULTURE AND LAND MANAGEMENT SECTOR THROUGH INNOVATION

AGRICULTURAL TECHNOLOGIES (AGROTECH)

Strengths and weaknesses, opportunities and threats

STRENGTHS

- A great potential for technology adoption due to the large number of players in the agricultural sector
- A large number of ready-made innovative solutions for the digitalization of the agricultural industry
- Ukraine's established role as a global hub for agricultural raw materials can increase confidence in Ukrainian Agrotech solutions

WEAKNESSES

- Low culture of innovation among small agricultural producers, which hinders demand for agrotech
- Insufficient scaling of existing technologies due to limited financial resources
- Lack of agricultural workers with appropriate technology skills

OPPORTUNITIES

- Stimulate in-depth processing of agricultural products for the development of Ukraine as an innovative agricultural center of the world
- Install automated agricultural equipment to overcome physical security challenges and labor shortages
- Ensure sustainable ecological agricultural production through financing of precision farming technologies

THREATS

- Difficulties in VAT administration may discourage agricultural producers from developing advanced processing
- High risks of damage/loss to the introduced innovative agricultural equipment as a result of the ongoing full-scale war
- Long-term risks of accidental incidents due to agricultural land mining

STRATEGIC GOAL 19. INCREASE THE EFFICIENCY OF THE AGRICULTURE AND LAND MANAGEMENT SECTOR THROUGH INNOVATION

AGRICULTURAL TECHNOLOGIES (AGROTECH)

Tasks for the industry development in Ukraine

THE STRATEGIC GOAL IS TO BE ACHIEVED THROUGH THE IMPLEMENTATION OF 6 TASKS:

01 Prioritize funding in the form of grants and loans for R&D and projects that concentrate on the processing of agricultural raw materials

02 Encourage the implementation of best practices in crop rotation, agrochemicals, plant protection products, and the use of renewable energy sources

03 Encourage the development and installation of automated harvesting systems that will allow for safe and efficient work in demined fields

04 Ensure the recovery of degraded lands by financing and encouraging such activities through monetary and non-monetary mechanisms

05 Support and encourage vertical, precision and hydroponic agriculture

06 Promote the creation of science parks and innovation clusters in accordance with the principles of reasonable regional specialization in agriculture

FRAMEWORK OF SECTORAL STRATEGIES

REGULATORY AND LEGAL FRAMEWORK

PRIORITY

- Ukrainian legislation is harmonized with EU regulations on agricultural innovation and environmental sustainability
- Develop a regulatory framework for the use of autonomous machinery and precision farming technologies
- Implementation of intellectual property protection mechanisms for Agrotech startups and innovations

INFRASTRUCTURE

PRIORITY

- WINWIN Agrotech CoE is opened
- A national agro-innovation cluster involving 50+ participants (universities, start-ups, agricultural producers) has been created
- A network of 10+ test sites for testing autonomous vehicles and new agricultural technologies is launched

OTHER TASKS

- Open 3-5 R&D centers at leading agricultural universities to develop new technologies
- Prioritize funding in the form of grants and loans for R&D and projects focusing on the processing of agricultural raw materials

DEVELOPMENT OF THE MARKET

PRIORITY

- Attracting investments in the Agrotech sector through public-private partnerships
- Establish grant programs to support SMEs and start-ups in the Agrotech sector

OTHER TASKS

- Include agro-technology companies to Diia.City residents with the creation of a special category for the industry
- 10+ innovative agro-technology products launched on international markets

FRAMEWORK OF SECTORAL STRATEGIES

EDUCATION AND WORKFORCE

PRIORITY

- Training programs for 1,000+ specialists in agro-technology launched in cooperation with universities and vocational education institutions
- Introduce retraining programs for engineers from other industries to work in Agrotech

OTHER TASKS

- 5+ new educational programs on agro-innovation, precision farming and agricultural processing implemented
- 3+ acceleration programs for Agrotech startups organised

SCIENTIFIC RESULTS AND INNOVATIONS

PRIORITY

- 15+ projects implemented to implement precision agriculture using AI/ML
- 5+ successful cases of Agrotech use in the restoration of degraded land developed

OTHER TASKS

- 20+ patents for innovative developments in Agrotech
- 10+ innovative solutions in the field of vertical, hydroponic and precision agriculture implemented

PARTNERSHIPS

PRIORITY

- 5+ memoranda with international organizations and enterprises for the implementation of joint projects
- International agro-innovation forum organized to attract new partners and investors

OTHER TASKS

- Ukrainian Agrotech companies integrated into Horizon Europe and other global initiatives
- Developed and launched joint R&D projects with leading international companies in the field of agrotechnology

EDTECH

MISSION OF THE DIRECTION

Ukraine has a future-ready educational ecosystem to create, develop and return the most talented professionals, creating a global competitive environment

SIMPLIFYING THE REGULATORY ENVIRONMENT

simplifying the licensing system for Edtech businesses and IT schools; establishing criteria for evaluating and accrediting non-formal education courses; promoting the protection of intellectual property rights for educational products; ensuring access of Edtech businesses to innovation clusters

INNOVATIVE SOLUTIONS FOR FORMAL AND NON-FORMAL EDUCATION (INCLUDING PERSONALIZATION OF EDUCATIONAL TRAJECTORIES)

CREATING AN INNOVATIVE EDUCATIONAL ENVIRONMENT BY SUPPORTING TECHNOLOGICAL SOLUTIONS FOR LIFELONG LEARNING

PLATFORMS FOR RETRAINING AND ADVANCED TRAINING USING AI

STRATEGIC GOAL 20. CREATE FAVORABLE CONDITIONS FOR THE DEVELOPMENT OF EDUCATIONAL TECHNOLOGIES

EDUCATIONAL TECHNOLOGIES (EDTECH)

General review of the industry sector

FEASIBILITY OF INNOVATIVE DEVELOPMENT OF THE INDUSTRY

Educational technologies will play an important role in the development of human capital, including digital literacy and integrated STEM education in Ukraine. Further implementation of edtech will ensure the creation of personalized educational trajectories and opportunities for lifelong learning. In addition, the introduction of educational technologies in Ukraine will contribute to the proper implementation of the EU policies

THE GLOBAL MARKET OF EDUCATIONAL TECHNOLOGIES

Global educational technology market scope in 2022

$123,40 B

→ From 2023 to 2030

THE EDTECH MARKET WILL INCREASE BY 13,6% PER YEAR ON AVERAGE

Number of edtech "unicorns" in the world in 2022

36 COMPANIES

→ The total market value of the companies reached

$105 B

THE MARKET OF EDUCATIONAL TECHNOLOGIES IN U

Edtech in Ukraine is mainly represented at the level of non-formal education, but also has some technological solutions within formal education, such as the One School, an electronic diary

The catalyst for the active penetration of technology in the formal education system was the need to adapt educational processes during the COVID-19 pandemic and in times of war

Most technologies are created in the informal education sector. The most popular is the provision of retraining and advanced training services by educational providers

STRATEGIC GOAL 20. CREATE FAVORABLE CONDITIONS FOR THE DEVELOPMENT OF EDUCATIONAL TECHNOLOGIES

EDUCATIONAL TECHNOLOGIES (EDTECH)

Strengths and weaknesses, opportunities and threats

STRENGTHS

- Developed IT infrastructure and startup environment can meet the high demand for alternative forms of education
- Symbiosis of the educational technology sector with the defence technology industry, e.g. private schools for drone operators
- Young people in Ukraine have a positive perception of digital technologies and demonstrate a steady demand for the use of innovative educational technologies

WEAKNESSES

- Insufficient penetration of educational technologies in the formal education system of Ukraine
- Lack of a system of public funding for the edtech sector and an underdeveloped market for foreign investments in Ukrainian edtech startups
- Outdated formal education system, including slow development of STEM, entrepreneurship and IT education

OPPORTUNITIES

- Involve key global private educational, research and development platforms and incubators in cooperation with Diia.City to increase investment opportunities
- Improve the quality of formal education by developing STEM education and providing HEI with digital technologies
- Stimulate further export of Ukrainian educational technologies in the context of IT products

THREATS

- Lack of access to the Internet in rural areas or frontline territories and insufficient possession of digital devices among the population of Ukraine
- Low level of trust in the quality of Ukrainian educational products may hinder the development of edtech projects
- Low lifetime spending on education and a low share of disposable income spent on education

STRATEGIC GOAL 20. CREATE FAVORABLE CONDITIONS FOR THE DEVELOPMENT OF EDUCATIONAL TECHNOLOGIES

EDUCATIONAL TECHNOLOGIES (EDTECH)

Tasks for the industry development in Ukraine

THE STRATEGIC GOAL IS TO BE ACHIEVED THROUGH THE IMPLEMENTATION OF 4 TASKS:

01 Simplify the licensing system for edtech businesses and IT schools in general

02 Facilitate the recognition of non-formal education results in higher educational establishments and pre-university education as a component of professional development or as part of courses within formal education

03 Promote the protection of intellectual property rights to educational products

04 Provide edtech businesses with access to other relevant innovation clusters and science parks, especially medtech and defence tech clusters

FRAMEWORK OF SECTORAL STRATEGIES

REGULATORY AND LEGAL FRAMEWORK

PRIORITY

- Simplified licensing procedure for EdTech businesses and IT schools (by Q3 2025)
- The introduction of accreditation of online educational courses provides a basis for simplifying licensing
- Criteria for the recognition of non-formal education results in formal education are established (by Q4 2025)

OTHER TASKS

- Integration of EdTech solutions into state education standards creates an opportunity for recognition of non-formal education
- An accreditation system for online educational courses is created

INFRASTRUCTURE

PRIORITY

- Establishment of the WINWIN EdTech CoE (includes support for universities and infrastructure development)
- 5+ pilot projects on the use of VR/AR in education launched
- AI solutions integrated into the educational process of at least 10 educational institutions

MARKET RESULTS

PRIORITY

- Launch of accelerators and support for startups within Diia.City stimulate the creation of new companies. 20+ new EdTech companies created

OTHER OBJECTIVES

- Attract investments in Ukrainian EdTech startups
- Introduction of government grants and marketing campaigns helps attract investment

FRAMEWORK OF SECTORAL STRATEGIES

EDUCATIONAL OUTCOMES

PRIORITY

- 1,000+ teachers trained in the use of EdTech tools. The development of training programs for teachers and educators is focused on achieving this indicator
- 100+ thousand students reached with digital educational solutions

OTHER TASKS

- Diia.Education expands students' access to digital solutions
- Integration of EdTech solutions into state education standards supports the creation of new courses

INNOVATIVE RESULTS

PRIORITY

- 5+ AI solutions for personalized learning developed
- Implementation of pilots for STEM centers and robotics supports the development of innovative solutions

SEMICONDUCTORS

MISSION OF THE DIRECTION

Ukraine has transformed its historical technological potential into a strategic platform to strengthen Europe through the creation of advanced semiconductor manufacturing and integration into global technology supply chain

- MICROELECTRONICS
- DEVELOPMENT OF MANUFACTURING CAPACITIES
- INTEGRATION INTO GLOBAL VALUE AND SUPPLY CHAINS UNDERGOING RECONFIGURATION

STRATEGIC GOAL 21. CREATE CONDITIONS FOR THE GROWTH OF THE SEMICONDUCTOR TECHNOLOGIES INDUSTRY

SEMICONDUCTOR TECHNOLOGIES (SEMICONDUCTORS)

General review of the industry sector

FEASIBILITY OF INNOVATIVE DEVELOPMENT OF THE INDUSTRY

Semiconductor technologies have become the basis for many modern innovations, such as AI, high-powered computers (data centers), the Internet of Things, mobile phones and gadgets, etc. Building scientific and industrial potential in the field of semiconductor technology production will create a solid foundation for developing our own innovative solutions in other sectors of the economy

Global developed countries, realizing the importance of semiconductor technologies, are already taking comprehensive measures to promote the development of this industry. Ukraine should focus some of its efforts on semiconductors, restoring its lost potential and following the global innovation trend

🇺🇸 USA

Adoption of the Chips and Science Act in August 2022:

$39 B

in subsidies for chip production

$13 B

in grants and tax incentives for R&D and training

🇪🇺 EU

Adoption of the European a Act in January 2022:

€43 B

in microchip production in Europe

THE GOAL IS TO REACH A 20%

share of the global semiconductor market by 2030

🇺🇦 UKRAINE

Loss of potential in the field of semiconductors:

40% OF MICROELECTRONICS

of the total volume of the USSR was developed by Ukraine in early 1990

STRATEGIC GOAL 21. CREATE CONDITIONS FOR THE GROWTH OF THE SEMICONDUCTOR TECHNOLOGIES INDUSTRY

SEMICONDUCTOR TECHNOLOGIES (SEMICONDUCTORS)

Strengths and weaknesses, opportunities and threats

STRENGTHS

- Experience in microelectronics development, which can provide the basis for the industry recovery
- A large number of specialists employed by global software and chip design companies
- A solid scientific foundation in microelectronics and micro- and nanosystems engineering

WEAKNESSES

- Loss of previously established strong positions in microelectronics development after the collapse of the Soviet system
- The lack of a specialized manufacturing enterprise makes it impossible to develop semiconductors in-house
- The insufficient domestic market, which reduces the incentive for the development of innovations in the area of semiconductors

OPPORTUNITIES

- Develop own production on the basis of scientific and qualified human resources
- Establish cooperation with the EU manufacturers of microelectronics to implement joint projects and programs
- Improve the legislative and infrastructure framework to stimulate the development of the semiconductor industry

THREATS

- High competition in the global market, which makes it difficult to integrate into global supply chains
- Gradual outflow of specialists with knowledge that could contribute to the development of the semiconductor industry
- Insufficient development and outdated R&D infrastructure, which hinders the development of high technologies

STRATEGIC GOAL 21. CREATE CONDITIONS FOR THE GROWTH OF THE SEMICONDUCTOR TECHNOLOGIES INDUSTRY

SEMICONDUCTOR TECHNOLOGIES (SEMICONDUCTORS)

Tasks for the industry development in Ukraine

THE STRATEGIC GOAL IS TO BE ACHIEVED THROUGH THE IMPLEMENTATION OF 5 TASKS:

01 Adopt a law that will create incentives for development and investment in the microelectronics sector

02 Promote investment in the development of production facilities

03 Integrate Ukrainian microelectronics into the development of other innovation clusters, including military technologies

04 Sign memorandums with the EU and companies in the microelectronics market on:
- joint projects
- investment programs
- Involvement in the implementation of the plan envisaged by the European Chip Act

05 Promote the creation of science parks and innovation clusters, as well as engage in joint R&D work:
- higher educational establishments
- vocational education institutions
- research centers
- private enterprises

FRAME OF SECTORAL STRATEGIES

REGULATORY AND LEGAL FRAMEWORK

PRIORITY

- Adoption of a law that creates incentives for the development and investment in the microelectronics sector (by Q4 2025)
- Harmonization of Ukrainian legislation with EU norms, particularly with the provisions of the European Chips Act

OTHER TASKS

- Development of tax and investment incentives to support national manufacturing capacities in the microelectronics sector

INFRASTRUCTURE

PRIORITY

- Establishment of the National Center for Microelectronics Technologies (WINWIN Semiconductor CoE), which will unite industry initiatives
- Organization of production capacities for microchips with technological nodes in the 180-130 nm range
- Modernization of 3+ university laboratories and research laboratories in the microelectronics sector

OTHER TASKS

- Creation of science parks and innovation clusters for the operation of higher education institutions, research institutions, and private enterprises

MARKER DEVELOPMENT

PRIORITY

- Market Opening: facilitating investment in creating production capacities
- Signing of 5+ memoranda with EU market enterprises for the implementation of joint projects, investment programs, and integration into the European Chips Act framework
- Launch of grant programs for SMEs in the microelectronics sector

OTHER TASKS

- Integration of Ukrainian microelectronics into the development of other innovation clusters, especially military technologies
- Inclusion of microelectronics companies in Diia.City with the development of a special category for the sector
- Promotion of the integration of Ukrainian microelectronics into global value and supply chains, including both defense and civilian sectors

FRAMEWORK OF SECTORAL STRATEGIES

EDUCATION AND WORKFORCE

PRIORITY

- Launch of training programs for 500+ new specialists in semiconductor technologies in cooperation with vocational education institutions and universities
- Implementation of a retraining program for engineers to integrate into microelectronics projects

OTHER TASKS

- Establishment of training centers or programs for high school students for early engagement in the sector

SCIENTIFIC RESULTS AND INNOVATIONS

PRIORITY

- Integration of Ukrainian microelectronics into the development of other innovation clusters, including military technologies
- Aqcuisition of 20+ patents for the development and innovation in microelectronics, including radiation-resistant microchips and energy solutions

PARTNERSHIPS

PRIORITY

- Formation of partnerships with 3+ leading companies in the sector for joint R&D projects
- Integration of Ukrainian companies into global programs such as Horizon Europe to support R&D

OTHER TASKS

- Organization of an international microelectronics forum to attract new investors and partners

SECURED CYBER SPACE

MISSION OF THE DIRECTION

Ukraine strengthens global security by implementing innovative cybersecurity solutions, leading in the protection of critical infrastructure, developing resilient digital ecosystems, and fostering talent to counter modern cyber threats

- STRENGTHENING PUBLIC-PRIVATE PARTNERSHIPS - COOPERATION TO COUNTER CYBER THREATS
- OPENING THE MARKET FOR CYBERSECURITY SERVICE PROVIDERS AND STATE SUPPORT IN EXPORTING CYBERSECURITY SOLUTIONS
- ENHANCING THE COUNTRY'S CYBERSECURITY INFRASTRUCTURE/ ECOSYSTEM
- TALENT DEVELOPMENT
- CYBER RISK INSURANCE

STRATEGIC GOAL 22. CREATE CONDITIONS FOR THE DEVELOPMENT AND USE OF PRODUCTS IN CYBERSECURITY

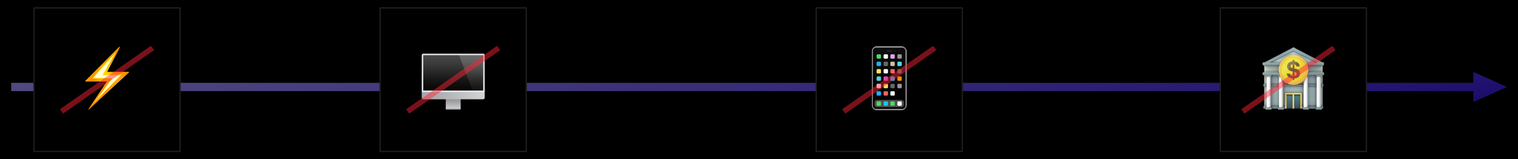
CYBERSECURITY (SECURE CYBER SPACE)

General review of the industry sector

FEASIBILITY OF INNOVATIVE DEVELOPMENT OF THE INDUSTRY

Ukraine has been in a state of permanent cyberwar for almost 10 years, and the russian federation is constantly conducting offensive cyber operations, attacking critical military and civilian infrastructure. Given these conditions, the development of the cybersecurity industry in Ukraine is a priority for ensuring the security of Ukrainian society

CHRONOLOGY OF THE LARGEST CYBERATTACKS



DECEMBER 2015

Russian cyberattack deprived 230 thousand Ukrainian electricity consumers of electricity

JUNE 2017

The virus launched by the Russians into accounting software has caused enormous damage to Ukrainian and international companies operating in the Ukrainian market

DECEMBER 2023

Large-scale failure of Kyivstar telecommunications operator resulted in disconnection of 24 million subscribers

AUGUST 2024

Over 5,5 billion requests were sent to the Monobank service during the 4 days of the attack

TO ENSURE CYBERSECURITY AND RESILIENCE OF THE STATE RECOMMENDATIONS OF THE FOLLOWING ORGANIZATIONS SHOULD BE USED:

- EU network and information security agency
- National Institute of Standards and Technologies
- US Cybersecurity and Infrastructure Protection Agency

STRATEGIC GOAL 22. CREATE CONDITIONS FOR THE DEVELOPMENT AND USE OF PRODUCTS IN CYBERSECURITY

CYBERSECURITY (SECURE CYBER SPACE)

Strengths and weaknesses, opportunities and threats

STRENGTHS

- Ukraine has many years of experience in responding to large-scale cyberattacks, which helps it quickly adapt to new challenges
- The country has an active infrastructure aimed at detecting, preventing and neutralizing cyber threats
- A large number of cybersecurity and IT professionals who can quickly adapt to new challenges

WEAKNESSES

- Limited resources hinder the development of innovations and improvement of cybersecurity
- Existing legislation does not meet current cybersecurity challenges and needs to be improved
- Lack of clear mechanisms for transforming practical experience in protecting against cyberattacks into competitive products and services

OPPORTUNITIES

- Adopt modern standards of legal and technical regulation in the field of cybersecurity and cyber defence
- Conclude strategic partnerships with international organizations and commercialization of our own experience in the international arena
- Develop public-private cooperation in the field of cybersecurity based on the best international practices

THREATS

- The aggressor state is actively developing its cyber capabilities, which poses a significant threat to Ukrainian infrastructure
- Constant changes in attack methods make it difficult to predict and neutralize them
- Low level of understanding of cyber risks among citizens and businesses

STRATEGIC GOAL 22. CREATE CONDITIONS FOR THE DEVELOPMENT AND USE OF PRODUCTS IN CYBERSECURITY

CYBERSECURITY (SECURE CYBER SPACE)

Tasks for the industry development in Ukraine

THE STRATEGIC GOAL IS TO BE ACHIEVED THROUGH THE IMPLEMENTATION OF 5 TASKS:

01 Develop public-private cooperation in the field of cybersecurity based on the best international practices, inform on cyber threats and methods of protection, and conduct educational and methodological activities

02 Develop cyber security infrastructure to identify vulnerabilities, counteract, prevent, detect, neutralize and recover from cyber incidents and cyber attacks

03 Develop effective technical regulation and conformity assessment in the field of cyber protection

04 Develop legal regulation for the cyber risk insurance market

05 Establish a national talent development program in the field of cybersecurity and cyber technologies

GREENTECH

MISSION OF THE DIRECTION

Ukraine has become a global leader in implementing GreenTech innovations, creating a sustainable economy to preserve the country's environment, the planet, and future generations

- DECARBONIZATION OF ENERGY
- IMPLEMENTATION OF ENERGY STORAGE SYSTEMS
- GREEN ENERGY TRANSITION
- MICROGRIDS AND SMART GRIDS
- PROJECTS IN GREEN METALLURGY
- TECHNOLOGIES FOR ENERGY-EFFICIENT INDUSTRY
- BIOENERGY AND BIOMETHANE PRODUCTION

STRATEGIC GOAL 23. STIMULATING INNOVATION IN GREEN TRANSFORMATION TO ACHIEVE CLIMATE, ENERGY EFFICIENCY AND OTHER RELATED GOALS

TECHNOLOGIES FOR GREEN TRANSFORMATION (GREENTECH)

General review of the industry sector

FEASIBILITY OF INNOVATIVE DEVELOPMENT OF THE INDUSTRY

Decarbonisation of the economy is one of the principles of Ukraine's national economic strategy. Technologies for green transformation create opportunities for the development of green metallurgy, renewable and nuclear energy, which can ensure Ukraine emergence as a European energy hub, displacing Russia from this market

The EU's European Green Deal initiative, the EU Critical Materials Act 2023, the Energy Strategy of Ukraine until 2050 (2023), and the potential Hydrogen Strategy of Ukraine 2050 set Ukraine's key focus on green transformation and require the introduction of digital technologies

UKRAINE'S FOCUS

- Renewable energy
- Energy storage facilities
- Hydrogen production
- Smart grids
- Energy demand management
- Distributed generation
- Extraction of critical raw materials for green transformation:
  - Lithium
  - Cobalt
  - Copper
  - Titanium

ROLE OF TECHNOLOGY

ARTIFICIAL INTELLIGENCE

- Rapid response to changes in the power system
- New pricing mechanisms
- Small distribution systems

CYBERSECURITY

- Protecting against cyber attacks on power systems

STRATEGIC GOAL 23. STIMULATING INNOVATION IN GREEN TRANSFORMATION TO ACHIEVE CLIMATE, ENERGY EFFICIENCY AND OTHER RELATED GOALS

TECHNOLOGIES FOR GREEN TRANSFORMATION (GREENTECH)

Strengths and weaknesses, opportunities and threats

STRENGTHS

- Existing cooperation programs with the EU provide access to funding mechanisms for energy and climate research
- High potential for wind and solar energy development due to favorable climate, as well as bioenergy based on a strong base of agricultural raw materials
- A highly trained and exercised base of nuclear experts for further modernization of this sector

WEAKNESSES

- Lack of energy management mechanisms due to manual power system dispatch
- Low interest of households in developing energy efficiency due to the subsidy system
- Dependence on imports of many of the greentech key components

OPPORTUNITIES

- Establishing cooperation with leading countries in energy innovation to share experience in energy modernization
- Development of bioenergy, biomethane, and bioethanol thanks to a strong base of agricultural raw materials
- Financial incentives for households and businesses to implement green transformation technologies

THREATS

- The energy sector remains at high risk of destruction in the context of the ongoing full-scale war
- China dominant role in green technology supply chains may reduce demand for Ukrainian innovations
- Emergency condition of buildings and building energy networks due to degradation of traditional housing managers

STRATEGIC GOAL 23. STIMULATING INNOVATION IN GREEN TRANSFORMATION TO ACHIEVE CLIMATE, ENERGY EFFICIENCY AND OTHER RELATED GOALS

TECHNOLOGIES FOR GREEN TRANSFORMATION (GREENTECH)

Tasks for the industry development in Ukraine

THE STRATEGIC GOAL IS TO BE ACHIEVED THROUGH THE IMPLEMENTATION OF 6 TASKS:

01 Provide financial incentives for projects aimed at green innovations

02 Establish an AI competence center for energy security, efficient energy dispatching and development of smart grids

03 Digitalize the process of monetizing energy subsidies

04 Hold negotiations with the EU on the integration of Ukraine's state policy in the industry with EU initiatives, in particular the Critical Raw Materials Act

05 Organize professional development programs for specialists working in the energy sector

06 Provide informational and organizational support for the participation of startups and other innovative companies in green transformation support programs from partners

FRAMEWORK OF SECTORAL STRATEGIES

REGULATORY AND LEGAL FRAMEWORK

PRIORITY

- Harmonization of Ukrainian legislation with European standards in green energy, including digital networks, support for microgrids, and energy storage systems
- Introduction of tax incentives for decarbonization and modernization projects based on 3D principles (Digitalized, Decentralized, Decarbonized)
- Implementation of a regulatory framework for the localization of green energy components (solar panels, batteries, inverters)

OTHER TASKS

- Development of support mechanisms for the export of green technologies (support for water, aluminium, and steel producers)

FINANCIAL INSTRUMENTS

PRIORITY

- Implementation of a grant program to support startups in green technologies
- Introduction of state guarantees to stimulate private investment in the green economy

OTHER TASKS

- Provision of preferential loans for innovations in the green sector

FRAMEWORK OF SECTORAL STRATEGIES

INFRASTRUCTURE

ENERGY SYSTEMS

PRIORITY

- Launch of 38 GW of energy storage systems
- Start of construction of 140 GW of wind power plants and 87 GW of solar power plants

INNOVATION HUBS

PRIORITY

- Opening of 5+ R&D centers in green technologies in partnership with industry leaders
- Development and launch of the WINWIN CoE AI for Energy Competence Center for energy security, digital networks, and automated dispatching

INDUSTRY

OTHER TASKS

- Localization of semiconductor and electronics production for the energy sector

MARKET DEVELOPMENT

EXPORT OF GREEN TECHNOLOGIES

PRIORITY

- Introduction of 10+ Ukrainian green technologies to international markets

OTHER TASKS

- Increase of hydrogen exports to 3.5 million tons, green ammonia to 2.5 million tons, and green steel to 36 million tons by 2050

INVESTMENT

PRIORITY

- Establishment of a National Green Innovation Fund

ENERGY COOPERATION

PRIORITY

- Implementation of platforms for integrating consumers into energy supply and demand management (microgrids, home energy storage systems, energy efficiency)

OTHER TASKS

- Launch of initiatives for digital interaction between energy consumers and suppliers

FRAMEWORK OF SECTORAL STRATEGIES

EDUCATION AND WORKFORCE

EDUCATIONAL PROGRAMS

PRIORITY

- Development of 10+ new educational programs in AI for energy, green chemistry, and digital networks

OTHER TASKS

- Partnerships with top universities (MIT, Stanford, Frauhofer Institute)

TALENT POOL

PRIORITY

- Training of 1,000 new specialists for the green economy

OTHER TASKS

- Involvement of 50+ international experts for internships and knowledge exchange

SCIENTIFIC RESULTS AND INNOVATIONS

DEVELOPMENTS

PRIORITY

- Implementation of 20+ innovative solutions in energy storage, microgrids, and AI for energy

OTHER TASKS

- Obtaining 30+ national patents in green technologies

PILOT PROJECTS

PRIORITY

- Launch of 15+ bioenergy and renewable energy restoration projects

OTHER TASKS

- Implementation of 15+ bioenergy and renewable energy restoration projects

PARTNERSHIPS

INTERNATIONAL COOPERATION

PRIORITY

- Signing of 10+ memoranda with international companies (LG Chem, Siemens, Northvolt)
- Integration of Ukraine into Horizon Europe and the European Innovation Coouncil

GLOBAL R&D PROJECTS

OTHER TASKS

- Implementation of 5+ joint projects with international R&D centers
- Engagement of university partnerships to create innovation laboratories

XR

MISSION OF THE DIRECTION

Ukraine is the first country in the world where immersive technologies are a social norm

DIGITIZATION OF GOVERNMENT DECISIONS

- Testing new policies
- Using digital twins to model the impact of reforms before implementation
- Assessing the economic and social effectiveness of reforms before implementation
- Data analysis for decision-making
- Using simulations to support decisions in budgeting, healthcare, and education

INDUSTRIAL DIGITAL TWINS

- For monitoring and optimization of production processes
- For predicting equipment failures using simulations
- For managing complex engineering systems (e.g., power plants, transportation infrastructure)

SMART CITIES DIGITAL TWINS

- Managing city infrastructure in real-time (traffic, water supply, energy)
- Modeling the impact of city policies (e.g., transport routes, construction)
- For supporting planning in crisis situations (evacuation and disaster recovery)

XR

DIGITAL TWINS FOR DEFENSE

- Simulating combat situations and training in virtual envirnoments
- Operational analysis and visualization of missions
- Simulations for predicting the effectiveness of new weapons

PERSONALIZED DIGITAL TWINS

- Medical use for surgery planning or rehabilitation
- Training and personal development on educational platforms

DIGITAL TWINS IN CONSTRUCTION AND INFRASTRUCTURE

- Real-time monitoring of bridges, roads, and buildings
- Optimizing construction and predicting infrastructure longevity

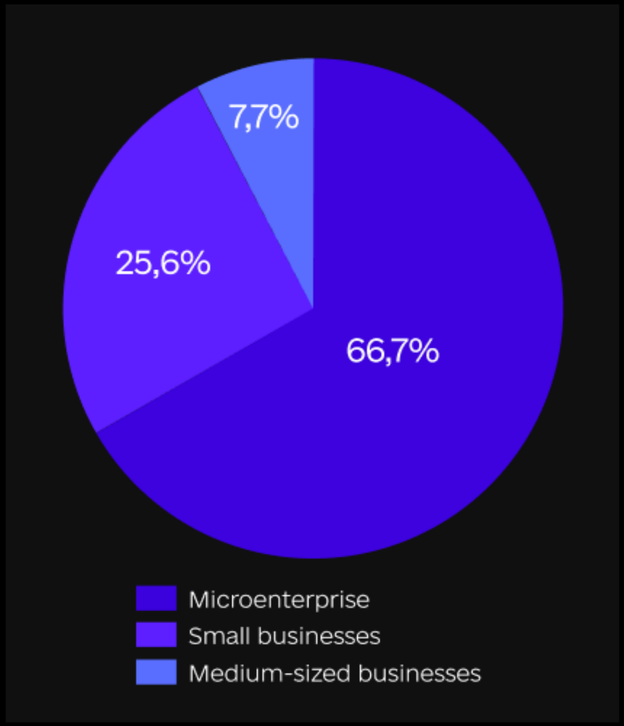
STRATEGIC GOAL 24. CREATING THE CONDITIONS FOR THE DEVELOPMENT OF INNOVATIONS IN THE FIELD OF IMMERSIVE TECHNOLOGIES

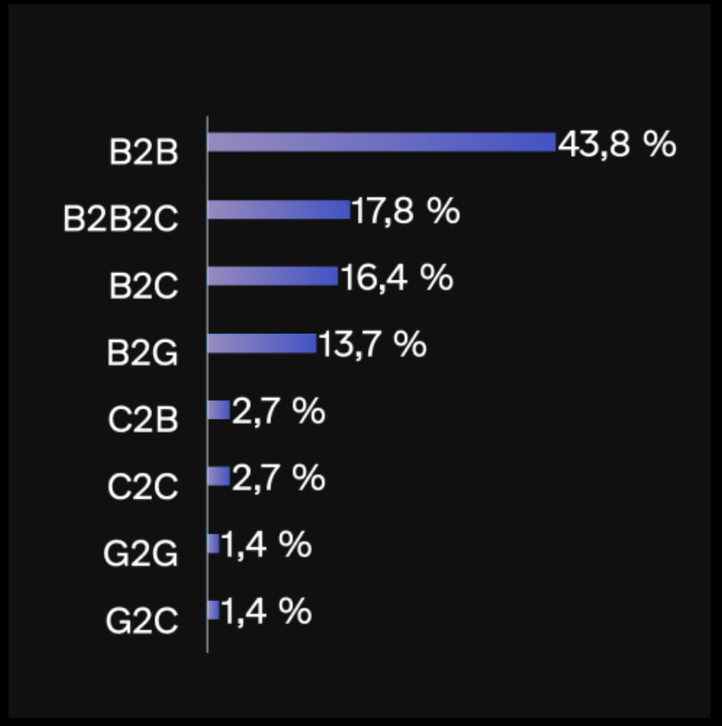
IMMERSIVE TECHNOLOGIES (XR)

General review of the industry sector

FEASIBILITY OF INNOVATIVE DEVELOPMENT OF THE INDUSTRY

The innovative development of the immersive technologies (XR) industry , including the introduction of augmented reality (AR) solutions, cloud computing, artificial intelligence, and modern communication networks, will contribute to market growth, job creation, and the formation of an ecosystem with high economic potential





The innovative development of XR technologies in Ukraine shows significant potential. The market is driven by microenterprises that are actively developing the B2B segment, which is a key driver for business solutions. In addition, B2B2C, B2C, and B2G are promising areas, indicating growing demand among consumers and the public sector

THE MOST PROMISING AREAS FOR THE IMPLEMENTATION OF XR PRODUCTS:

- Education
- Military
- Healthcare
- Cultural

[1] Market research of the immersive technologies industry in Ukraine, conducted by Sensorama and BRDO with the support of the Ministry of Digital Transformation of Ukraine and the Ministry of Education and Science of Ukraine, November 2023

STRATEGIC GOAL 24. CREATING THE CONDITIONS FOR THE DEVELOPMENT OF INNOVATIONS IN THE FIELD OF IMMERSIVE TECHNOLOGIES

IMMERSIVE TECHNOLOGIES (XR)

Strengths and weaknesses, opportunities and threats

STRENGTHS

- Digital technologies are being actively implemented in Ukraine, which increases the readiness to integrate XR into various areas
- Availability of qualified specialists in the IT industry, which creates preconditions for the development of the national market
- There are government and partner programs to support startups and innovative projects, including those focused on the metaverse

WEAKNESSES

- Lack of adaptation of Ukrainian digitization and metadata standards to international regulations
- Low awareness of the standards and ethical norms of using the metaverse among developers and users
- Lack of sufficient financial support for the development of the industry

OPPORTUNITIES

- Establishing a national competence center focused on supporting startups, educational programs and pilot projects that will contribute to the growth of the industry
- Accelerating the development of the local economy through projects using immersive technologies
- Existence of international recommendations and best practices for creating an ethical framework for the metaverse that can be used in Ukraine

THREATS

- Existence of regulatory gaps in the field of copyright and metadata
- High level of competition in the global metaverse market with strong players, which is more developed than the Ukrainian market
- Economic instability in Ukraine, which affects the volume of investments in the industry

STRATEGIC GOAL 24. CREATING THE CONDITIONS FOR THE DEVELOPMENT OF INNOVATIONS IN THE FIELD OF IMMERSIVE TECHNOLOGIES

IMMERSIVE TECHNOLOGIES (XR)

Tasks for the industry development in Ukraine

THE STRATEGIC GOAL IS TO BE ACHIEVED THROUGH THE IMPLEMENTATION OF 4 TASKS:

01 | Bring Ukrainian digitization and metadata standards in line with international ones

02 | Create a national center of competence for immersive technologies

03 | Organize pilot projects on the use of digital immersive products

04 | Ensure compliance with the “freedom of panorama”[1] principle within the IP legislation framework

[1] A legal concept that permits creating images of objects which are located in a public space without infringing on any copyright

FRAMEWORK OF SECTORAL STRATEGIES

REGULATORY AND LEGAL FRAMEWORK

PRIORITY

- Develop and approve a legislative framework to protects citizens' rights and regulate interactions in the metaverse
- Create data protection regulations for personal data in immersive environments
- Update the 5G technology development plan, adding support for metaverse solutions
- Develop safety standards for XR solutions, especially for education and defense

OTHER TASKS

- Incorporate the "Freedom of Panorama" principle into the Copyright Law and adapt digital content standards to international norms (e.g., ISO/IEC 12113:2022)
- Establish a regulatory sandbox for testing and launching innovative XR solutions
- Improve public procurement procedures in the field of innovation, introducing pilot projects for innovative XR solutions

INFRASTRUCTURE

PRIORITY

- Launch a pilot project on digital twins of infrastructure facilities, especially in the energy sector
- Integrate 5G infrastructure for XR innovation and ensure testing zones with high-speed internet access

OTHER TASKS

- Create a Center of Excellence (WINWIN XR CoE) for best practices in XR research, promotion, and development
- Include the development of cloud infrastructure for XR solutions.

INVESTMENT AND BUSINESS STIMULATION

PRIORITY

- Launch a state grant program to support startups and small businesses in the XR sector
- Integrate startups and companies in XR into Diia.City, creating a special category for residents

OTHER TASKS

- Organize a marketing campaign to promote Ukrainian metaverse solutions among international investors

FRAMEWORK OF SECTORAL STRATEGIES

POPULARIZATION AND COMMUNICATION WITH SOCIETY

PRIORITY

- Launch an information campaign to raise public awareness of metaverse solutions
- Organize a national forum for representatives of the public and private sectors aimed at developing metaverse technologies

OTHER TASKS

- Conduct public surveys to assess the needs and possibilities of implementing immersive solutions in the public sector

EDUCATION AND WORKFORCE

PRIORITY

- Develop educational programs for highly specialized professionals such as CDTOs, operators, and XR solution developers
- Implement pilot programs using educational immersive content for vocational and technical education

OTHER TASKS

- Create a national knowledge base for immersive content moderated by the Ministry of Education and Science of Ukraine

MONITORING AND PERFORMANCE ANALYSIS

PRIORITY

- Develop a system of metrics and KPIs to evaluate the effectiveness of metaverse solutions in the public sector

OTHER TASKS

- Create an analytical platform to monitor the implementation of immersive solutions in the public sector
- Publish an annual report on the state of immersive technology development in Ukraine, including pilot project results

IMPLEMENTATION OF PILOT PROJECTS

PRIORITY

- XR-based project for the rehabilitation of wounded individuals
- Industrial direction (training in production environments)

AI

MISSION OF THE DIRECTION

AI in Ukraine has become a key tool for increasing the efficiency of government institutions, businesses, and improving the quality of life of citizens

DEVELOPMENT OF UKRAINIAN-LANGUAGE AI

DATA-DRIVEN DECISION SUPPORT SYSTEMS

IMPLEMENTATION IN PRIORITY SECTORS

STRATEGIC GOAL 25. ENSURING THE CONDITIONS FOR THE DEVELOPMENT OF INTERNAL INFRASTRUCTURE FOR AI RESEARCH, INNOVATION AND SOLUTIONS IMPLEMENTATION

ARTIFICIAL INTELLIGENCE (AI)

General review of the industry sector

FEASIBILITY OF INNOVATIVE DEVELOPMENT OF THE INDUSTRY

Over the past decade, the global market has been experiencing a revolution in AI-based technologies. AI can create an additional USD 15,7 trillion of global GDP by 2030[1]. In the coming decades, AI is expected to become a central element of innovative development, promoting inclusive growth, sustainable development, and citizen well-being in line with the UN Sustainable Development Goals.

OCTOBER 2019	Ukraine joined the OECD principles on Artificial Intelligence
DECEMBER 2020	Ukraine is also a member of the Council of Europe's Committee on Artificial Intelligence, which is developing a future Council of Europe Convention on Artificial Intelligence
MAY 2021	The Cabinet of Ministers of Ukraine approved the Concept of Artificial Intelligence Development The Action Plan for the Implementation of the Artificial Intelligence Development Concept was approved. The Concept defines the directions, mechanisms, and timeframes for implementing the main tasks for the development of AI technologies in Ukraine. Implementation of the Concept also contributes to facilitating domestic AI developments and their entry into foreign markets

A NUMBER OF UKRAINIAN UNIVERSITIES OFFER SPECIALIZED AI PROGRAMS

- Kharkiv National University of Radio Electronics
- National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”
- Kyiv School of Economics
- Ukrainian Catholic University

[1] According to the study of PwC “Global Artificial Intelligence Study: Exploiting the AI Revolution”, 2017

STRATEGIC GOAL 25. ENSURING THE CONDITIONS FOR THE DEVELOPMENT OF INTERNAL INFRASTRUCTURE FOR AI RESEARCH, INNOVATION AND SOLUTIONS IMPLEMENTATION

ARTIFICIAL INTELLIGENCE (AI)

Strengths and weaknesses, opportunities and threats

STRENGTHS

- The open data maturity level in Ukraine is 97%, which allows free use of data for AI training and development
- The number of educational institutions offering specialized AI programs has increased in Ukraine, creating qualified personnel for the industry
- The Government Concept of AI Development in Ukraine and the Action Plan for its implementation were approved, laying the groundwork for further AI development in Ukraine

WEAKNESSES

- According to the Oxford Government AI Readiness Index 2023[1] , Ukraine ranks 60th out of 193, which indicates limited readiness of the state for widespread AI adoption
- State funding remains insufficient to create a competitive AI ecosystem
- Ukraine lacks comprehensive legal regulation in the field of AI technologies

OPPORTUNITIES

- Integration of Ukrainian developments into the EU markets by creating a regulatory sandbox[2] and testing in a controlled environment
- Attracting state funding to support the AI sector will strengthen the ecosystem and retain talent in Ukraine
- Increasing the number of joint research projects between universities, research institutions, and businesses will expand opportunities for implementing AI solutions and innovations

THREATS

- The lack of a clear regulatory framework may lead to conflicts with future EU standards in the field of AI, which will complicate the entry of Ukrainian developments into the European market
- High competition in the global AI market makes it difficult to occupy key positions in the world
- The need to strike a balance between protecting human rights and promoting innovation in the face of legal uncertainty

[1] Government AI Readiness Index 2023 is an annual report prepared by Oxford Insights that assesses the readiness of governments to implement AI in the delivery of public services. [2] A regulatory sandbox is a tool allowing businesses to develop high-tech products under state supervision

STRATEGIC GOAL 25. ENSURING THE CONDITIONS FOR THE DEVELOPMENT OF INTERNAL INFRASTRUCTURE FOR AI RESEARCH, INNOVATION AND SOLUTIONS IMPLEMENTATION

ARTIFICIAL INTELLIGENCE (AI)

Tasks for the industry development in Ukraine

THE STRATEGIC GOAL IS TO BE ACHIEVED THROUGH THE IMPLEMENTATION OF 9 TASKS:

01 Create an international innovation cluster aimed at the exchange of experiences and development of govtech solutions using AI under the leadership of Ukraine

02 Support the project for the development of the Ukrainian language corpus, structured database of texts used for linguistic, scientific and applied research

03 Hold competitive tenders based on open government data to attract stakeholders to cooperate with the government

04 Promote partnerships between higher education institutions, research institutions and businesses for joint AI research

05 Integrate data into AI govtech solutions and open data initiatives; develop and implement AI and algorithms free of gender bias and stereotypes

06 Develop and publish a position paper on Ukraine approach to the implementation of AI regulation

07 Create a regulatory sandbox for testing high-tech products for compliance with national legislation and the EU Artificial Intelligence Regulation to facilitate their entry into the EU market

08 Implement a gradual transition to the standards provided for by the European Union legislation

09 Create favorable conditions for advancing innovative technologies using AI technologies in priority economic sectors

FRAMEWORK OF SECTORAL STRATEGIES

REGULATORY AND LEGAL FRAMEWORK

PRIORITY

- Development of a White Paper on AI regulation in Ukraine
- Creation of testing and certification standards for AI solutions
- Harmonization of legislation with EU regulations in the field of AI

OTHER TASKS

- Development of regulations on the ethical use of AI
- Creation of unified standards for the entire software development cycle for AI
- Introduction of AI advisors (experimental norm) - the state
- Ensuring the AI non-discrimination algorithms

INFRASTRUCTURE

PRIORITY

- Establishment of the WINWIN CoE AI (including for the energy security)
- Creation/development of AI innovation clusters
- Establishment of a regulatory sandbox for testing AI products
- Development of computing infrastructure for AI

MARKET DEVELOPMENT

PRIORITY

- Support for the development of AI solutions in priority sectors (defense, integration with medical technologies)
- Development of Ukrainian-language AI
- Expansion of the export potential of Ukrainian AI products
- Creation of conditions for the commercialization of AI developments

OTHER TASKS

- Encouraging the implementation of AI in business processes

FRAMEWORK OF SECTORAL STRATEGIES

EDUCATION AND WORKFORCE

PRIORITY

- Organization of qualification improvement programs for civil servants, the private sector, and scientists
- Creation of an AI faculty on the basis of CDTO Campus
- Development of research competencies in the AI sector

OTHER TASKS

- Integration of AI learning into educational programs

PARTNERSHIPS

PRIORITY

- Promotion of cooperation between science and business
- Development of international cooperation
- Participation in European AI initiatives

FINANCIAL INSTRUMENTS

PRIORITY

- Launch of a separate grant-based program (support for AI projects)
- Creation of co-financing mechanisms

OTHER TASKS

- Promotion of venture capital involvement at the state level
- Tax incentives for AI development

SYSTEM OF ORDERS

PRIORITY

- Formation of state procurement orders for AI solutions
- Implementation of AI in government services
- Creation of a system for prioritizing AI projects
- Development of mechanisms for public-private partnerships in the AI sector

AUV

MISSION OF THE DIRECTION

Ukraine has become one of the world's leaders in the development and implementation of AUV technologies, becoming an innovation hub. This will contribute to economic stability, security, and provide opportunities for continuous technological improvement

- DEVELOPMENT OF UNMANNED TECHNOLOGIES FOR AGRICULTURE
- DEVELOPMENT OF UNMANNED DEFENSE TECHNOLOGIES
- AUTONOMOUS TESTING HUB
- R&D HUB FOR AUTONOMOUS TECHNOLOGIES
- DEVELOPMENT OF UNMANNED CARGO AND MARITIME VESSELS
- PRODUCTION OF AUTONOMOUD VEHICLES ANS SPARE PARTS

STRATEGIC GOAL26. CREATING INCENTIVES FOR INNOVATION IN AUTONOMOUS TRANSPORTATION WITH A FOCUS ON RECOVERY AND DEFENCE

AUTONOMOUS UNMANNED VEHICLE (AUV)

General review of the industry sector

FEASIBILITY OF INNOVATIVE DEVELOPMENT OF THE INDUSTRY

In the context of the humanitarian crisis caused by the war, Ukraine can use autonomous vehicles to reduce the shortage of vital resources in a number of industries

POSTWAR RECOVERY

Ukraine has significant potential in the application of autonomous technologies in the agricultural sector to restore land after the war. The use of autonomous tractors, drones, and robots to monitor, cultivate, and harvest fields can increase agricultural efficiency and reduce risks to workers

HEAVY EQUIPMENT

Ukraine is actively adopting autonomous technologies in the construction industry to increase productivity and address labor shortages. The country has the potential to become a platform for testing autonomous freight transport by 2027, contributing to innovative infrastructure development

MANUFACTURING

In the manufacturing sector, Ukraine can deploy autonomous technologies to solve labor problems and improve safety at production sites

WATER TRANSPORTATION

In the field of water transport, projects involving autonomous barges and boats may be developed. Ukraine can focus on the production of autonomous cargo vessels for river and sea use, which will become relevant due to labour shortages and the problem of waterways mining

STRATEGIC GOAL26. CREATING INCENTIVES FOR INNOVATION IN AUTONOMOUS TRANSPORTATION WITH A FOCUS ON RECOVERY AND DEFENCE

AUTONOMOUS UNMANNED VEHICLE (AUV)

Strengths and weaknesses, opportunities and threats

STRENGTHS

- Ukraine has experience in implementing innovative digital solutions through government initiatives
- Availability of qualified personnel with significant experience in engineering and development of unmanned vehicles
- The existing industrial base creates opportunities for the production and testing of unmanned technologies

WEAKNESSES

- Ukraine lacks a sufficient regulatory framework for the effective implementation and monitoring of unmanned vehicles
- Insufficient funding from the state and the private sector limits the development of pilot projects
- There is a low level of public trust in the widespread use of unmanned technologies

OPPORTUNITIES

- Further development of unmanned technologies in the agricultural sector, logistics and defence industry to stimulate the economy and utilize synergy potential
- Establishing and developing cooperation with global companies to create test sites and R&D centers in Ukraine
- Use of drones for land demining and increasing the efficiency of agricultural activities

THREATS

- The war causes loss of personnel, limits investment, and creates additional risks to infrastructure, which limits the adoption of technology
- Lack of charging stations and poor road quality limit the widespread adoption of unmanned vehicles
- Delays in decision-making create bureaucratic obstacles to innovation

STRATEGIC GOAL26. CREATING INCENTIVES FOR INNOVATION IN AUTONOMOUS TRANSPORTATION WITH A FOCUS ON RECOVERY AND DEFENCE

AUTONOMOUS UNMANNED VEHICLE (AUV)

Tasks for the industry development in Ukraine

THE STRATEGIC GOAL IS TO BE ACHIEVED THROUGH THE IMPLEMENTATION OF 2 TASKS:

01 Promoting partnerships with leading companies and institutions to develop and implement autonomous technologies

02 Support for the development of autonomous demining systems using innovative technologies

FRAMEWORK OF SECTORAL STRATEGIES

DEVELOPMENT OF THE LEGAL FRAMEWORK

PRIORITY

- Develop and approve a legal framework for testing, implementing, and commercializing AUVs with focus on logistics (cargo), civilian, and military (demining) needs
- Simplify procedures: create a fast track for licensing, testing, and certifying autonomous transport systems
- Hramonize legislation: ensure Ukrainian AV-regulations align with international standards (e.g., UNECE, ISO 26262 for automobile security)
- Establish an AUV Regulatory Sandbox with the possibility of testing autonomous transport conditions

OTHER TASKS

- Simplify procedures: introduce special permits for military and civilian AUV projects within government programs
- Tax policy incentives: include preferential taxation for companies engaged in AUV production, testing, and R&D in Ukraine
- Process transparency: develop and electronic portal for submitting applications for AUV certification and licensing, accessible to Ukrainian and international companies

ORGANIZATION AND MANAGEMENT

PRIORITY

- Create a separate agency (or a task group during wartime) for AUVs covering strategic issues, deregulation, investment, project implementation, security monitoring, and public communication
- Develop an agency's comprehensive action plan for implementing AUV technologies

OTHER TASKS

- Conduct additional consultations with government organizations in Singapore, the UAE, and California (USA) to implement best practices

INFRASTRUCTURE DEVELOPMENT

PRIORITY

- Testing R&D centers: Establish the WINWIN CoE AUV Center of Excellence in cooperation with Ukrainian and international universities.
- Expansion of C-ITS: Develop projects to implement intelligent transport systems for AUVs in key regions of Ukraine
- 5G Integration: Ensure test zones with high-speed internet to support V2X communication

OTHER TASKS

- Route infrastructure: Deploy intelligent communication systems on pilot toutes and in logistics hubs

FRAMEWORK OF SECTORAL STRATEGIES

CYBERSECURITY

PRIORITY

- Security standards: establish accessible security requirements for AUV operations and real-time monitoring
- Cyber Security Center: establish a specialized center to detect, analyze and respond to cyber threats in the AUV ecosystem

OTHER TASKS

- Integrate security: develop a multi-layered data security system for AUVs, including encryption, authentication and protection against cyber threats

INVESTMENTS IN R&D

PRIORITY

- Acceleration programs: launch acceleration programs for AUV startups focused on military and logistics applications
- Scholarships for R&D: implement grant programs for teams developing innovative solutions for AUVs

OTHER TASKS

- Simulation laboratories: develop modern laboratories for simulating scenarios using VR/AR for operator training
- Environmental monitoring: to use AUVs to assess the state of the environment in demining zones and damaged regions by creating environmental maps
- Intellectual property: facilitate the registration of at least 10 patents in the field of navigation, AI technologies and demining solutions

EDUCATION AND HUMAN RESOURCES

PRIORITY

- Training programs: launch training programs to train 200 engineers, operators and maintenance specialists for AUVs

OTHER TASKS

- Training modules: develop training modules together with international universities to develop specialized skills, such as AI development for AUVs

FRAMEWORK OF SECTORAL STRATEGIES

ATTRACTING INVESTORS

PRIORITY

- International cooperation: secure at least three strategic agreements with global technology leaders for joint research and testing of AUVs
- Integrate AUV startups and companies into Diia.City with the development of a special category for residents

OTHER TASKS

- International missions to attract partners from the EU, the US, and Asia
- Promotion: organize marketing campaigns and investment tours to present the possibilities of using AUVs in logistics and demining
- Public-private partnerships: launch joint programs with Ukrainian and international companies to integrate AUVs into cargo transportation, environmental monitoring and military operations

PUBLIC COMMUNICATION

OTHER TASKS

- Awareness raising: conduct public demonstrations of AUVs, organize AV conferences and information campaigns to popularize autonomous technologies among businesses and the public
- Social acceptance: to launch a survey among logistics companies, military structures and citizens to collect feedback and adjust AUV implementation programs

HD MAPPING AND INFRASTRUCTURE DIGITALIZATION

OTHER TASKS

- Implementation of pilots: to launch two pilot regions for HD mapping with the integration of AUVs into logistics processes
- Continuous updating: implement real-time technologies to update maps and ensure data accuracy

SPACETECH

THE MISSION OF THE DIRECTION

Ukraine is a full-fledged participant in the global space market, integrating advanced technologies, promoting international cooperation and ensuring strategic development of space infrastructure for scientific, defence and commercial needs

- DEVELOPMENT OF SMALL SATELLITES
- PRODUCTION OF SPACE TECHNOLOGY
- INTEGRATION OF SPACE TECHNOLOGIES INTO DIGITAL INFRASTRUCTURE
- DEVELOPMENT OF GROUND INFRASTRUCTURE
- PARTICIPATION IN INTERNATIONAL SPACE PROGRAMS

STRATEGIC GOAL 27. CREATING FAVORABLE CONDITIONS FOR THE DEVELOPMENT OF SPACE TECHNOLOGIES

SPACE TECHNOLOGIES (SPACETECH)

General review of the industry sector

FEASIBILITY OF INNOVATIVE DEVELOPMENT OF THE INDUSTRY

Innovative development of the Ukraine's space industry is key to strengthening national security, economic growth and integration into international science and technology programs. Utilization of the existing potential, introduction of modern mechanisms to support innovations and training of new specialists will ensure the country competitiveness in the global space technology market

6-13%

was the share of startup services provided by Ukraine in the global market in the period up to 2010

One of the key trends that characterizes the current stage of development of the space technology sector is the increasing role of private companies in space exploration. As of 2024, more than 20 private enterprises in Ukraine are involved in solving the tasks of the State Space Agency

OVER THE 32 YEARS OF EXISTENCE OF THE STATE SPACE AGENCY OF UKRAINE (SSAU), THE FOLLOWING HAS BEEN ACHIEVED:

- 31 spacecrafts launched into orbit, including Sich-1, Sich-2, EgyptSat-1
- 138 launches of rockets from 6 spaceports around the world
- Agreements with 35 countries concluded
- Participation in international projects: “Sea Launch”, ”Dnipro”, “Artemis”
- Designed rocket systems: “Cyclone-4”, “Antares”
- Established: Institute of Space Research, Center for Aerospace Education of Youth of Ukraine, National Center for Spacecraft Control and Testing

STRATEGIC GOAL 27. CREATING FAVORABLE CONDITIONS FOR THE DEVELOPMENT OF SPACE TECHNOLOGIES

SPACE TECHNOLOGIES (SPACETECH)

Strengths and weaknesses, opportunities and threats

STRENGTHS

- The activities of NAS institutions, technical institutions of the MES and the SSAU provide the basis for the development of space technologies
- Ukraine has enterprises with experience in developing rocket and space technology and manufacturing components for spacecraft
- Ukraine has successfully implemented projects with international partners, including the development of booster rocket and participation in space mission programs

WEAKNESSES

- The system of organizing space activities in Ukraine has been stagnating since the last decade of the 20th century due to the conservation of enterprises and underfunding
- Currently, most of the space industry resources in Ukraine are directed to military needs, which limits the development of other areas
- For many years, higher education institutions lacked quality training for space experts, who are increasingly in demand

OPPORTUNITIES

- Expanding activities from defence focus to commercial and scientific areas for sustainable development of the industry
- Enhanced cooperation with ESA[1], NASA[2] and other international partners to access technologies and markets
- Creation of accelerators and incubators to attract investment and support space startups

THREATS

- Low level of localization of production, which creates risks due to interruptions in the supply of components
- The risk of infrastructure destruction and disruptions in the work of space industry enterprises due to the war
- Migration of qualified specialists abroad due to the lack of competitive working conditions

[1] European Space Agency; [2] National Aeronautics and Space Administration (the USA)

STRATEGIC GOAL 27. CREATING FAVORABLE CONDITIONS FOR THE DEVELOPMENT OF SPACE TECHNOLOGIES

SPACE TECHNOLOGIES (SPACETECH)

Tasks for the industry development in Ukraine

THE STRATEGIC GOAL IS TO BE ACHIEVED THROUGH THE IMPLEMENTATION OF 11 TASKS:

01 Develop a Strategy for the Development of Space Activities of Ukraine, coordinated with the Strategy for Innovative Development

02 Develop a new edition of the Law of Ukraine “On Space Activities”

03 Promote the implementation of a quality management system for the space industry, considering the EN9100 and AS9100 standards

04 Define a list of jobs in the space industry and develop qualification requirements and professional standards for them

05 Conduct an audit of space education institutions and update the content of space educational programs and methodological developments

06 Improve the procedure for forming a state order for training specialists and personnel for the space sector

07 Introduce a mechanism for employment of space graduates under the state order

08 Promote the accreditation of qualification centers for the recognition of professional qualifications in the space sector

09 Develop a State Space Program of Ukraine with support for advanced production technologies

10 Promote the participation of Ukrainian companies in the Horizon Europe space program, integration into the European Space Agency, accession to the European Space Program and expansion of international cooperation in space activities

11 Actively participate in the Artemis program by cooperating with partners and sharing space expertise.

FRAMEWORK OF SECTORAL STRATEGIES

LEGAL AND REGULATORY FRAMEWORK

PRIORITY

- A new version of the Law of Ukraine ‘On Space Activities’ harmonized with European legislation is approved (by the Q4 of 2025)
- The National Space Program, which provides support for start-ups and commercialization of innovations, is approved and launched

OTHER TASKS

- Implemented a quality management system in accordance with EN9100/AS9100 standards in 10+ key space industry enterprises
- Harmonization with international standards

INFRASTRUCTURE

PRIORITY

- WINWIN SpaceTech CoE established
- 3+ laboratories / production facilities upgraded to meet international standards

OTHER TASKS

- Small satellites
- Space communications
- A test site for space start-ups was launched to test components, modules and technologies
- A cloud-based platform for space mission simulations and data exchange between industry enterprises was deployed
- 2+ space technology centers at universities established to support research and development of space innovations

PARTNERSHIPS

PRIORITY

- 5+ memoranda of cooperation with European space agencies (ESA, CNES, etc.) signed
- 3+ agreements with international companies for joint R&D projects signed

OTHER TASKS

- Ukrainian companies are integrated into 2+ European space programs, such as Horizon Europe or Galileo
- Space innovation forum organized in Ukraine to attract international partners

FRAMEWORK OF SECTORAL STRATEGIES

ECONOMIC RESULTS

PRIORITY

- Attracting investments in the space industry through public-private partnerships
- Grant programs for SMEs in the space sector are introduced

OTHER TASKS

- Opening markets: stimulating the production of space components in Ukraine for domestic and foreign markets
- Create a special fund to finance small space projects
- 10+ new space startups created through acceleration programs
- Export (potentially)

HUMAN RESOURCES RESULTS

PRIORITY

- 200+ new specialists in the space industry trained through specialized programs at universities
- Launch programs to train cybersecurity specialists for space technologies

OTHER TASKS

- Development of training programs for working with satellite platforms and mobile media
- 20+ international experts were engaged to work in Ukrainian companies
- 500+ new jobs created in the industry through new projects

SCIENTIFIC RESULTS

PRIORITY

- 5+ new space technologies developed, including control systems for small satellites and modules for space missions
- A pilot project was implemented to use AI to analyze remote sensing data

OTHER TASKS

- Launched a retraining program for engineers from other industries to integrate into space projects
- 100+ scientific papers published in international journals, in particular in the field of space systems and technologies
- 30+ patents in the space sector, including innovations in rocket engines, materials and communication systems
- AI research in space

FLUID ECONOMY

MISSION OF THE DIRECTION

Ukraine is an integral part of the global digital economy, providing the most convenient conditions for businesses and citizens through effective regulation, innovative platforms and continuous access to financial and technological solutions

- CREATING A FAVORABLE REGULATORY ENVIRONMENT FOR BUSINESS AND CITIZENS
- DEVELOPMENT OF DIGITAL INFRASTRUCTURE
- GLOBAL INTEGRATION AND INVESTMENT ATTRACTION, SUPPORT FOR THE EXPORT OF DIGITAL PRODUCTS AND SERVICES
- EDUCATION FOR THE FUTURE (AI-READY)

FRAMEWORK OF SECTORAL STRATEGIES

LEGAL AND REGULATORY FRAMEWORK

PRIORITY

- Legislation has been developed to regulate the gig economy, digital platforms, smart contracts and digital platform operators
- Updated regulations on personal data protection in line with GDPR standards are introduced
- A regulatory framework to support blockchain initiatives and smart contracts has been created
- Ukrainian legislation is harmonized with EU regulations in the field of digital economy
- Consider mechanisms for adapting legislation to respond quickly to new technologies (e.g., AI, metaverse)

OTHER TASKS

- Developed and implemented the Science.City legal regime aimed at supporting knowledge-intensive companies and start-ups
- Approve the regulatory framework for the functioning of Industry 4.0 implementation centers
- Consider cybersecurity formats for digital platforms and transactions

INFRASTRUCTURE

PRIORITY

- Develop and launch an online platform for coordinating digital services and supporting the gig economy
- Include programs to support the integration of digital services and the digital economy in rural areas

OTHER TASKS

- Special zones for digital nomads with the necessary infrastructure (hubs, coworking spaces) have been opened - for example, 5+ Diia.Business-TISC centers have been launched at universities for technology transfer
- Create testbeds for digital solutions, IoT and AI in urban infrastructure

DEVELOPMENT OF THE MARKET

PRIORITY

- Digital companies are included as residents of Diia.City with the development of a special regime for the Gig Economy
- Programs to reduce barriers for Ukrainian digital products to enter international markets have been launched
- Grant programs to support start-ups in the digital economy have been introduced

OTHER TASKS

- A unified platform for collecting, analyzing and sharing data in the field of innovation was created
- Mechanisms for simplifying access to the stock market for digital innovation companies developed

EDUCATION AND HUMAN RESOURCES

PRIORITY

- New study programs in Web3, AI, and Industry 4.0 launched on the basis of Diia.Business
- Create a program for retraining traditional specialists in digital industries

OTHER TASKS

- Conducted 50+ trainings on digital tools for SMEs on the basis of Diia.Business
- Organized internship programs for freelancers, digital nomads and gig specialists

ORDERING SYSTEM

PRIORITY

- Innovative procurement unit for state projects in the digital economy introduced
- 10+ projects piloted through state digital innovation programs

OTHER TASKS

- Reduced the time for implementing digital solutions through procurement by 30 %

4

STRATEGIC GOALS PERFORMANCE INDICATORS

THROUGH THE IMPLEMENTATION OF THE 2030 STRATEGY, UKRAINE PLANS TO ACHIEVE A NUMBER OF KEY GOALS

AS A RESULT OF THE STRATEGY IMPLEMENTATION, IT IS EXPECTED, AMONG OTHER THINGS, THAT THE FOLLOWING STRATEGIC GOALS PERFORMANCE INDICATORS WILL BE ACHIEVED BY 2030

470–510

points, quality of secondary education according to PISA indicators

428-450 IN 2022

45

place in the Global Innovation Index

57 PLACE IN 2023

Up to 35%

labor productivity growth driven by innovation

25% IN 2023

1,2%

share of R&D expenditures in GDP

0,33% IN 2023

55

place in the Global Human Capital Index

79 PLACE IN 2023

35

place in the Global Patent Index

46 PLACE IN 2023

5

MONITORING AND EVALUATION

THE STRATEGY IS IMPLEMENTED AND SUPPORTED BY THE MINISTRY OF FINANCE WITH THE PARTICIPATION OF MINISTRIES AND OTHER CENTRAL AND LOCAL EXECUTIVE AUTHORITIES

STEP 1

MTD analyzes information submitted by ministries, other central and local executive authorities on the status of the operational plan

STEP 2

Based on the results obtained, MTD prepares an annual report on the Strategy implementation to be submitted annually by 1 April, starting in 2025, to the Cabinet of Ministers of Ukraine and published on its official website

STEP 3

In case of untimely fulfillment or non-fulfillment of the operational plan tasks, the ministries, central and local executive authorities responsible for their implementation shall inform MTD of the reasons and may submit proposals for amending the Strategy

STEP 4

The efficiency of the Strategy implementation is assessed based on the performance indicators set out in the Strategy. Based on the evaluation results, proposals are made, if necessary, for the tasks adjustment and the Strategy implementation measures

FOR MORE DETAILS ABOUT THE GLOBAL INNOVATION VISION OF UKRAINE 2030 SEE:

WINWIN.GOV.UA