Akademia WSB

WSB University

SDG 9
Tracker Report
2025

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Industry, Innovation and Infrastructure: WSB University's SDG 9 Report 2025

WSB University (Akademia WSB), Dąbrowa Górnicza · Reporting year 2025

Executive summary

In 2025 WSB University strengthened its role as a source of applied research and innovation for the industrial region of Silesia. The University combined growing research capacity with:

- a new national mandate in the commercialization of research;
- applied projects that address concrete regional problems;
- investment in laboratories and digital infrastructure;
- a widening network of industrial partners.

Key results for the reporting year:

- **Commercialisation:** WSBU became lead of an "Inkubator Rozwoju" consortium within Science4Business, a PLN 296.7 million national programme for the commercialization of research involving 79 research organizations. WSBU's component is worth PLN 9.7 million.
- **Research evaluation:** in the national evaluation of research for 2022–2025, WSBU received ten scientific categories. They include category A in civil engineering, geodesy and transport, and category B+ in safety engineering.
- **Publications:** 265 peer-reviewed articles were published in 2025. Six WSBU researchers were among the world's top 2% most-cited scientists, and the University's journal *Forum Scientiae Oeconomia* reached the first quartile (Q1) of the SJR ranking.
- **Applied research:** eight applied research and innovation projects were completed within EduLider. Four further projects, financed by the GZM Metropolitan Science Fund, addressed regional challenges from flood-defense monitoring to deep fake detection.
- **Infrastructure:** a solar-energy Industry Skills Centre in Żywiec was completed in November 2025, and EduLider funded new laboratories in cybersecurity, logistics and traffic simulation.
- **Rankings:** WSBU's Master's programme in Computer Science was ranked fifth in Poland by Perspektywy 2025.

Context

SDG 9 aims to build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation. Its targets of particular relevance to universities are:

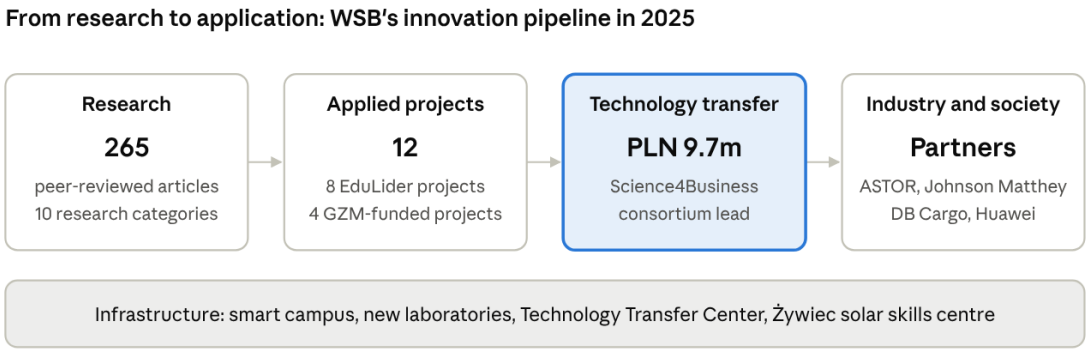
- quality, reliable, sustainable and resilient infrastructure (9.1);
- the upgrading of infrastructure and the retrofitting of industries to make them sustainable (9.4);
- enhanced scientific research, more research and development workers and greater public and private R&D spending (9.5);
- support for domestic technology development and industrial diversification (9.b).

The Times Higher Education Impact Rankings assess universities' contribution through research on industry, innovation and infrastructure, patents citing university research, university spin-offs and research income from industry.

SDG 9 is one of the seven priority goals of WSBU's Sustainable Development Strategy to 2030. The Strategy commits the University to intensify scientific research, increase the number of research and development workers and private R&D spending, and support technology development, research and innovation in Poland, including industrial diversification.

The University's regional setting gives these commitments particular importance. Silesia remains Poland's main industrial region and is undergoing a transition from coal mining towards a green and digital economy. That transition depends on new technologies, modern infrastructure and a skilled workforce.

The innovation pipeline



WSBU research and innovation pipeline · four stages and their infrastructure, 2025

WSBU's contribution to SDG 9 follows a path from research to application. Scientific output in management, engineering, security and the health sciences feeds applied projects, often commissioned to answer regional needs. Since 2025 the University has a dedicated national mandate, through Science4Business, to take the most promising results to market. Laboratories, the Technology Transfer Center and the University's own smart-campus infrastructure support every stage.

Research capacity and commercialization

Research performance

In the national evaluation of research for 2022–2025, the Ministry of Science and Higher Education awarded WSBU ten scientific categories. This is one of the broadest ranges of degree-awarding rights among non-public universities in Poland:

- **A+:** family sciences;
- **A:** management and quality studies, security studies, medical sciences, pedagogy, international relations, and civil engineering, geodesy and transport;
- **B+:** further disciplines including economics and finance and safety engineering.

In 2025 WSBU researchers published 265 peer-reviewed articles, 178 of them on responsible management and sustainability. Six researchers were included in the global list of the top 2% most-cited scientists:

- Prof. Zdzisława Dacko-Pikiewicz;
- Prof. Katarzyna Szczepańska-Woszczyna;
- Prof. Aleksy Kwiliński;
- Prof. Tetiana Pimonenko;
- Prof. Oleksii Lyulyov;
- Prof. Rui Alexandre Castanho.

Their work includes research on green growth, energy, digitalization and AI in the European economy. In April 2025 the University's journal *Forum Scientiae Oeconomia* was classified in the first quartile (Q1) of the SJR ranking in multidisciplinary research and the social sciences. It ranked fourth among 38 Polish journals in business, management and accounting.

Commercialisation of research: Science4Business

Science4Business is a strategic PLN 296.7 million project led by the Ministry of Science and Higher Education. It forms a national network of 79 research organizations working to bring research results to the market. WSBU leads one of its "Inkubator Rozwoju" consortia, together with Jan Długosz University in Częstochowa and the KOMAG Institute of Mining Technology, a state research institute for mining machinery and technology. WSBU's component, financed by the European Funds for a Modern Economy (PLN 9.7 million, April 2025 – December 2028), comprises four stages:

1. mapping the University's research potential;
2. identifying the solutions with the greatest potential for commercialization;
3. developing technologies through industrial research and experimental development;
4. selecting research projects with high implementation potential for the next stage.

The work is supported by the University's Technology Transfer Center. Its Deputy Director, Dr Karol Jędrasiak, also leads research on deepfake detection and represents Poland in the management committees of two European COST Actions.

Research and development in Industry 4.0

WSBU's postgraduate programmes in AI Management, Cybersecurity Management and Change Management in the AI Era build the competences needed to adopt new technologies in industry. The IT programme holds the European EUR-ACE engineering quality label, and the Master's programme in Computer Science was ranked fifth in Poland by Perspektywy 2025.

Applied research for the region

EduLider: research for Silesian companies

EduLider is financed by the European Funds for Silesia programme from the Just Transition Fund (PLN 5.1 million, 2024–2026). It includes research projects that transfer knowledge from the University to

companies in the Silesian Voivodeship through practical, implementable solutions. In total, WSBU teams carried out eight applied research and innovation projects, among them:

- care procedures for patients with overweight and obesity, and breast ultrasound examination;
- the use of artificial intelligence to generate scenarios automatically for the medical simulation centre;
- new methods for teaching vascular access procedures;
- energy management in enterprises;
- solutions that improve the mobility of people with special needs.

The project also produced the "EkoŚcieżka" (Eco-Path), an interactive installation for environmental education.

Research funded by the GZM Metropolis

In 2025 the Upper Silesian-Zagłębie Metropolis (GZM) financed four WSBU research projects through its Metropolitan Science Fund, each addressing a regional challenge:

Project	Lead researcher	Value	Contribution to SDG 9
Analysis of satellite images using AI to assess the safety of flood-protection infrastructure	Dr Paweł Buchwald, Dawid Jurczyński	PLN 34,773	A prototype system that analyses satellite and sensor data to monitor dikes, dams and reservoirs, enabling early detection of threats and supporting flood-risk management
Features and patterns of the most popular deepfakes	Dr Karol Jędrasiak	PLN 33,431	Analysis of 20 widespread deepfakes against major datasets to identify the most effective detection methods, strengthening digital security
Physical factors in nerve-structure injury during regional anesthesia	Dr Mateusz Wilk	PLN 34,200	A precise pressure-measurement system to make nerve-block procedures safer
Digital competences of teachers in the GZM Metropolis	Dorota Dębosz	PLN 39,933	Evidence and recommendations for the digital transformation of schools in post-industrial cities

International applied research

- **Climate indicators:** the Visegrad Fund project "Forecasting factors influencing climatic changes as a part of SDGs 2030", led by WSBU with partners from Ukraine, Slovakia, the Czech Republic and Hungary, developed a new method for estimating sustainable development indicators. It produced two journal articles and an online guide for local governments and NGOs.

- **Campus security:** the Universal CBRNE Protection System project (Internal Security Fund, EUR 3.33 million, 2025–2028) is analyzing security procedures through study visits in nine EU countries. It will develop new procedures and a training programme, including VR tools and the educational game THOR, to protect open university campuses against chemical, biological, radiological, nuclear and explosive threats.
- **Mountain rescue technology:** the Erasmus+ project RESCUER tested virtual-reality training, electric rescue vehicles and drones to make mountain areas safer for older people and people with disabilities.

Sustainable and resilient infrastructure

The campus as a smart-infrastructure laboratory

WSBU applies on its own campus the technologies it teaches:

- building management systems control heating, cooling and lighting in real time;
- building information modelling supports the management of University buildings;
- smart meters track energy and water consumption;
- environmental sensors monitor air quality and lighting;
- monitoring systems track the output of solar panels.

New teaching and research laboratories

Investment in 2025 equipped the University with modern laboratories:

- **EduLider** (Just Transition Fund) funded:
    - a laboratory for emergency medical procedures with high-fidelity simulators;
    - a virtual laboratory for problem-based learning and gamification;
    - a laboratory simulating warehouse logistics operations and road traffic management;
    - a cybersecurity laboratory;
    - an educational model for simulating road and rail traffic in the city.
- **EduMed** (National Recovery Plan, total value PLN 17.4 million, from November 2025) is modernizing facilities for medical education. These include laboratories for anatomy, histology, molecular biology and biomedical sciences, and OSCE examination rooms.

Infrastructure for the energy transition

- **Żywiec Industry Skills Centre:** in partnership with the City of Żywiec, WSBU established a center for solar energy at the Mechanical and Electrical School Complex (National Recovery Plan, PLN 11.7 million, completed in November 2025). The center trains technicians for the renewable-energy industry.
- **Energy research:** the Institute of Energy Transformation researches renewable energy, low-carbon transport and sustainable heating. On 11 April 2025 WSBU was content partner of the conference "Energy challenges of cities" in Tychy, on municipal energy self-sufficiency, energy communities and energy clusters.
- **Energy-efficient buildings:** a follow-up investment begins in April 2026. The thermo-modernization of the University's historic building at ul. Konopnickiej 36 in Dąbrowa Górnicza

(European Funds for Infrastructure, Climate and Environment, PLN 4.2 million) will replace windows, heating, hot-water and ventilation systems, install LED lighting and add a rooftop photovoltaic installation with energy storage.

Transport and safety infrastructure

- **Regional transport:** on 3 March 2025 WSBU co-organized, with the Polish Economic Society in Katowice and Górnośląskie Towarzystwo Lotnicze, the conference "Vision and prospects for the development of Katowice International Airport" in the Silesian Parliament hall. Experts identified the airport as a central element of the regional mobility system and called for continued investment in transport technologies.
- **Rail safety:** a WSBU diploma thesis on the safety culture of rail traffic controllers, supervised by Prof. Marek Sitarz, won the diploma-thesis category of the 8th Safety Culture Competition of the Office of Rail Transport.
- **Security of public institutions:** the CBRNE Protection System project strengthens the resilience of open campuses.

Digital transformation and artificial intelligence

WSBU treats its own digital transformation as an applied innovation project. The University develops and tests AI solutions in its operations before bringing the experience into teaching and partnerships with business.

Digital University

The "Cyfrowa Akademia WSBU" (Digital WSBU) programme, described in the 2024/25 yearbook, covers several initiatives:

- **University AGI:** an architecture based on a network of cooperating, specialized AI agents. It aims to support the management of the University as a whole, not only isolated tasks such as chatbots.
- **AI decision support:** an in-house application based on large language models analyses a student's financial and academic situation and provides finance staff with a recommendation for further action.
- **Proactive cybersecurity:** an automated security architecture, including patch management, keeps systems resistant to known vulnerabilities.
- **"Uczelnia VR":** a virtual model of the University building, created from a 3D scan.
- **Virtual computer laboratories:** students can work with advanced software from any location.

In the 2025/26 academic year the University extended this work:

- **Gemini for Education:** made available to the whole community for teaching and productivity.
- **MAIA:** a 24/7 AI assistant for candidates and students that answers from verified University sources. It is designed for transparency in line with Article 50 of the EU AI Act and refers individual cases to staff.
- **Digital processes:** the electronic student file, a digital scholarship process and a knowledge base on staff research achievements.

- **AI laboratory:** a new laboratory with GPU workstations and a full open-source AI software stack, alongside an Apple development laboratory.

Governance of AI

Rector's Order No. 140/2024/2025 sets out principles for the use of artificial intelligence in teaching and learning. At national level, Vice-Rector Prof. Katarzyna Szczepańska-Woszczyna presented WSBU's experience in the panel "Good practices in the digital transformation of science, teaching and administration" at the 10th LUMEN Conference. In the 2025/26 academic year she was appointed to the supervisory board of NASK, Poland's national research institute for cybersecurity.

Dialogue on AI and the economy

- **AI congress:** on 27 November 2025 WSBU hosted "AI: Business and Medicine of the Future", on the practical use of AI in companies and healthcare.
- **AI and cybersecurity:** WSBU organized a conference on artificial intelligence and cybersecurity.
- **Data protection:** WSBU hosted the 11th Open Day of the Personal Data Protection Office (6 February 2025), on AI and data protection.
- **Teacher Academy:** the SmartStart Erasmus+ Teacher Academy (EUR 1.87 million, 2025–2028) develops AI-supported teaching for European schools.

Industry partnerships and international cooperation

Partnerships with industry

Partner	Sector	Scope of cooperation	Year
Veolia Polska	Energy, heat and water	Strategic partner; the Institute of Energy Transformation is directed by Veolia's commercial director in Poland	Ongoing
DB Cargo Polska	Rail freight	Joint curricula and postgraduate programmes in rail logistics, research and training	2024/25
Ficomirrors Polska	Automotive	Joint educational and research and development projects	2024/25
Noble Cert	Certification	International certification of competences in quality management and sustainability	2024/25
Huawei	Technology	Students' participation in the Huawei Tech Arena, focused on AI, optical networks and wireless algorithms	2025
ASTOR	Automation, robotics, Industry 4.0	Cooperation with a market leader in automation and digitalization of industrial processes	2025/26
Johnson	Advanced	Joint research and development projects,	2025/26

Partner	Sector	Scope of cooperation	Year
Matthey Poland	materials	internships and curriculum development	
Silesian Logistics Centre (Gliwice)	Logistics infrastructure	Strategic agreements linking students with industry practice and providing expert knowledge to the partner	2025/26
Olkusz water and sewerage utility	Water infrastructure	Cooperation linked to the Executive MBA for the water and sewerage sector	2025/26

WSBU also cooperates with the Katowice Special Economic Zone, a partner of the April 2025 energy conference in Tychy and of the Agriverde Start-up conference at its KSSENON accelerator. In 2025 the Tychy Chamber of Industry and Commerce named WSBU "Integrator Roku 2025" for its cooperation with business, local government and social partners.

Representation in research institutions

- **Mining research:** Vice-Rector Prof. Marcin Lis was appointed to the Scientific Council of the Central Mining Institute (GIG-PIB), a leading state research institute, for 2025–2029.
- **Research evaluation:** WSBU experts, including Prof. Paulina Polko, were appointed to the Science Evaluation Committee for the national assessment of research quality in 2022–2025.

International capacity building for innovation

- **GITEKA** (Erasmus+ CBHE, from October 2025) supports universities and manufacturers in Kosovo and Albania in green industrial transformation.
- **DUALKO** (Erasmus+ CBHE, from October 2025) strengthens links between universities and industry through dual education in ICT in Albania and Kosovo. Industry stakeholders took part in the kick-off meeting at Aleksandër Xhuvani University in Elbasan.
- **AGILE** (Erasmus+ CBHE, from November 2025) modernizes curricula in Kenya, Albania and Kosovo around green, digital and business competences, and builds a shared e-learning ecosystem with MOOCs and open educational resources.
- **Q-Helix** (European University alliance led by WSBU) works on smart-city solutions, including IoT sensors for real-time monitoring of air quality and energy use, and assistive smart homes for older people.
- **CERN:** WSBU lecturers took part in study visits to CERN, the European Organization for Nuclear Research, exploring both particle physics research and modern approaches to teaching.

Continuing activities in 2026

- **Science4Business:** the consortium led by WSBU selects research projects with the highest commercialization potential and develops them through industrial research and experimental development.

- **Energy-efficient buildings:** the thermo-modernization of the historic building at ul. Konopnickiej 36, including photovoltaics with energy storage, runs from April 2026 to March 2027.
- **Medical infrastructure:** EduMed completes the modernizations of medical laboratories by August 2026.
- **European research networks:** Dr Karol Jędrasiak represents Poland on the management committees of two new COST Actions. AI-GUIDE works on the responsible use of generative AI in research and innovation, and SEARCH on simulation in healthcare education.
- **International capacity building:** GITEKA, DUALKO and AGILE enter their first full year of implementation.
- **New industry partnerships:** cooperation with ASTOR, Johnson Matthey, the Silesian Logistics Centre and the Olkusz water utility opens new opportunities for joint research and development projects and internships.