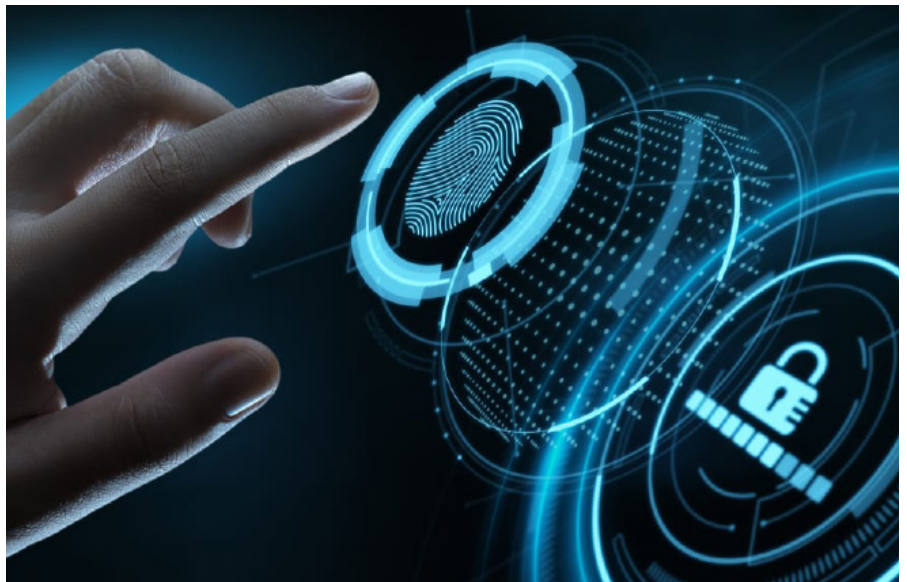


R&D & Innovation Sector in SLOVAKIA



R&D & Innovation Sector in Slovakia

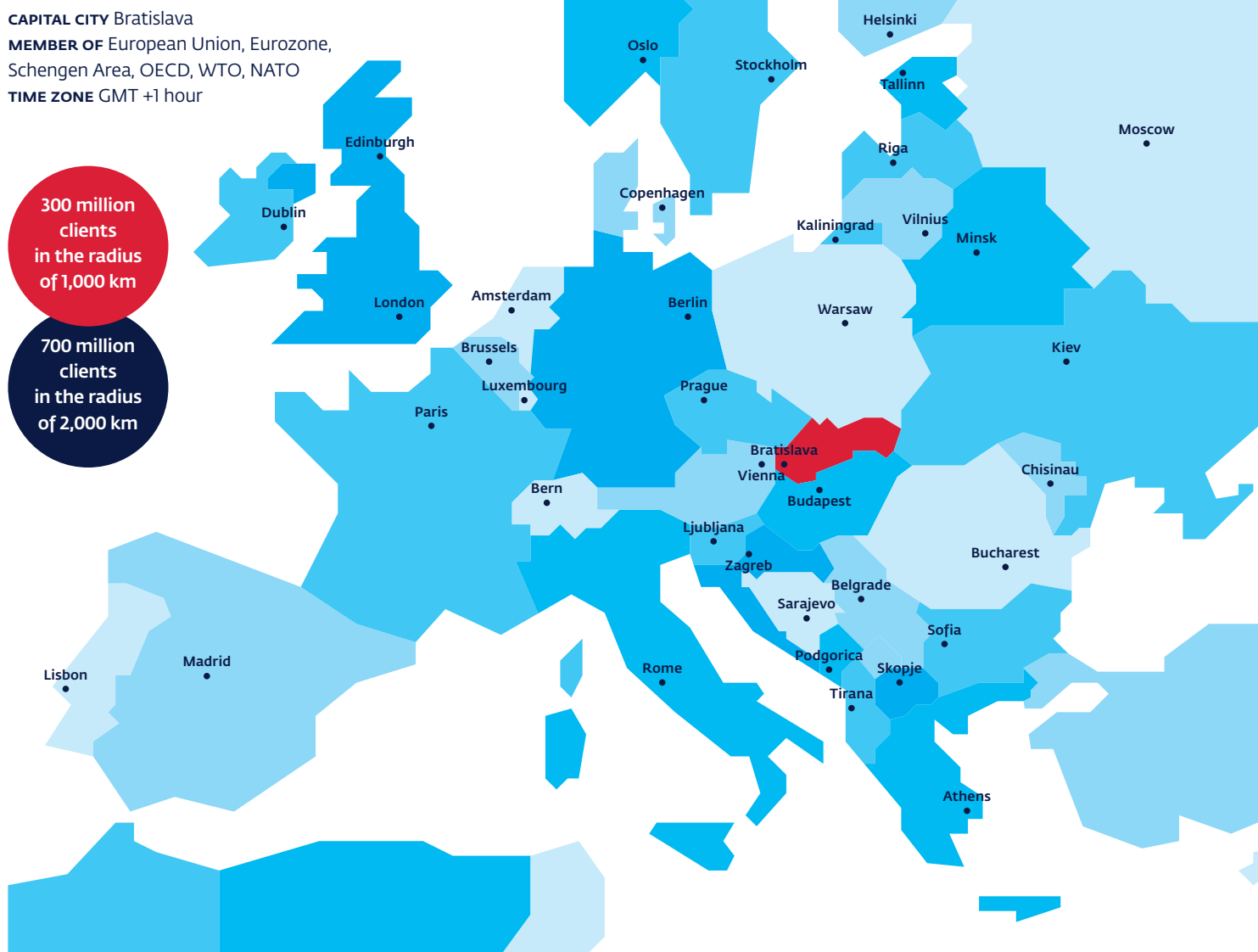
Despite being viewed as a production powerhouse, Slovakia sees its future mainly in high value-added projects and investments, especially in R&D and innovative operations. This publication aims to introduce both existing as well as perspective areas of the Slovak R&D environment. Moreover, it highlights key advantages for investors why to locate their research facilities in Slovakia.



TOTAL AREA 49,035 km²
POPULATION 5.4 million
CAPITAL CITY Bratislava
MEMBER OF European Union, Eurozone, Schengen Area, OECD, WTO, NATO
TIME ZONE GMT +1 hour

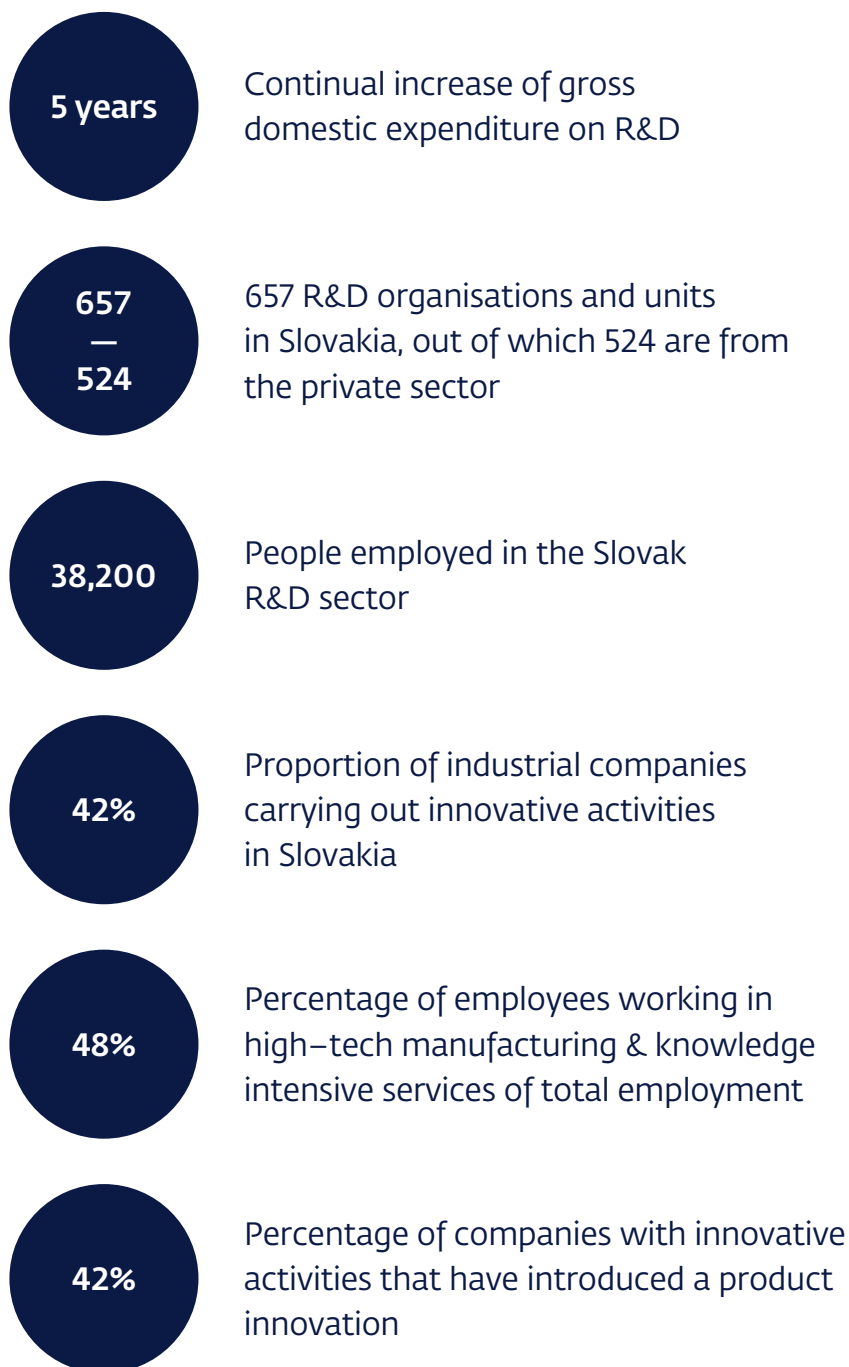
300 million clients in the radius of 1,000 km

700 million clients in the radius of 2,000 km



Overview of the R&D Sector in Slovakia

R&D is the fundamental precondition for increasing competitiveness and maintaining sustainable development. On top of that, it is inevitable for the long-term growth of knowledge economy in Slovakia. Slovak R&D has a long tradition and is capable of delivering internationally renowned cutting-edge solutions required in today's modern era.



Source: Statistical Office of the Slovak Republic: Yearbook of Science and Technology (2022); Eurostat (2023)



Top Reasons to Establish an R&D Centre in Slovakia

- 1 Additional 100% tax deduction for R&D expenses
- 2 Attractive investment incentives for R&D and technology centres
- 3 Special tax regime for intellectual property revenues (patent box)
- 4 Stable economic & political environment with Euro currency
- 5 Qualified & cost-effective human resources
- 6 Universities providing multidisciplinary talent pool of graduates & postgraduates
- 7 CEE Leader in FDI and technology transfer — the best ability to adapt new technologies
- 8 Extensive R&D & innovation infrastructure (centres of excellence, technological parks and university science parks)
- 9 Established cooperation between industry & academia
- 10 The highest rate in the CEE region of higher added-value jobs as a % of total employment

When Innovation is Tradition

Slovakia's abundant R&D potential lies mainly in its people. In the past, local inventors pushed the technological boundaries within several fields and created knowledge-based preconditions for modern industrial development. Building on this tradition of industrial innovation, many Slovak companies are pioneering development of cutting edge technologies.



AUREL STODOLA
steam and gas turbines,
arm prosthetic



SPINEA
actuators, positioners



JOZEF K. HELL
water column pumping
machines



GA DRILLING
Plasmabit® milling
and drilling



JOZEF MURGAŠ
wireless telegraph



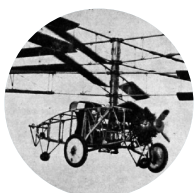
ESET
antivirus protection



JOZEF M. PETZVAL
achromatic lens



PHOTONEO
3D technologies and
robotic vision



JÁN BAHÝĽ
helicopter, flying machines



AIRCAR - KLEIN VISION
flying car



Examples of Other Notable Slovak Innovations

Design



ECOCAPSULE
Self-sustainable
microhomes



WERKEMOTION
Transportation &
industrial design
R&D studio



MATADOR
Mobility
solutions

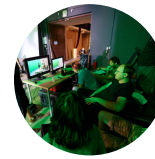
Design is an integral part of developing new products. Apart from technical aspects, many Slovak companies also focus on aesthetics.

Creativity and technology also come together in game design and development, a rising segment in which Slovak companies are beginning to play an important role.

Game Development Industry



PIXEL FEDERATION
Social media
games/mobile &
web-based games



STUDIO 727
3D animations for
movies and game
development
industry



**POWERPLAY
STUDIO**
Mobile and
desktop games

ICT



INNOVATRICES
Biometrics



SOITRON
Complex IT
solutions



SYGIC
Navigation
systems

The core of Slovakia's technology potential comes from its firm base of home-grown IT companies, which are able to outrank their global competitors in several fields.

Much of Slovakia's programming potential is embedded in local businesses delivering solutions for modern cities.

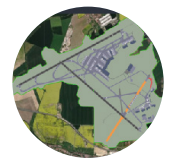
Smart Cities



SENSONEO
Waste
management

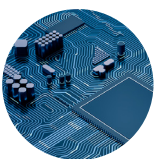


CVIKER
VR/AR solutions
for property
technology



SIMPLICITY
City management
app

Space, Medtech, Electronics & Automotive



TACHYUM
Universal
processors



SPACEMANIC
Satellite
components



MULTIPLEXDX
Cancer
diagnostics

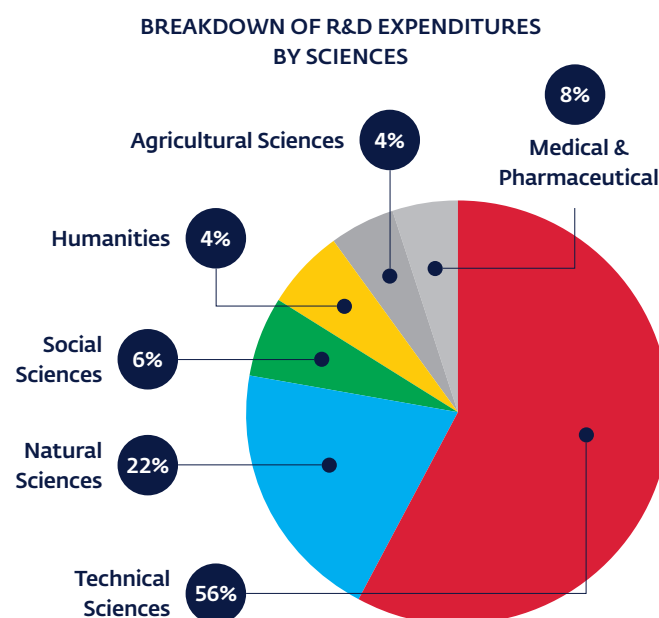
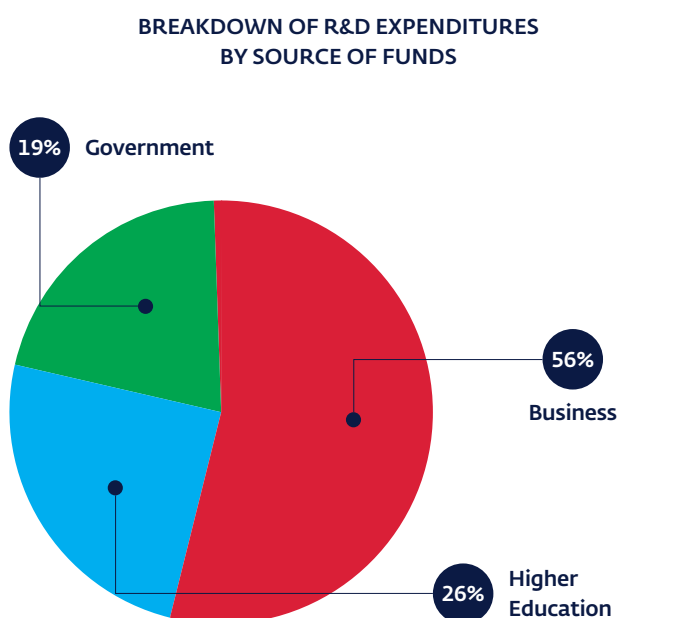
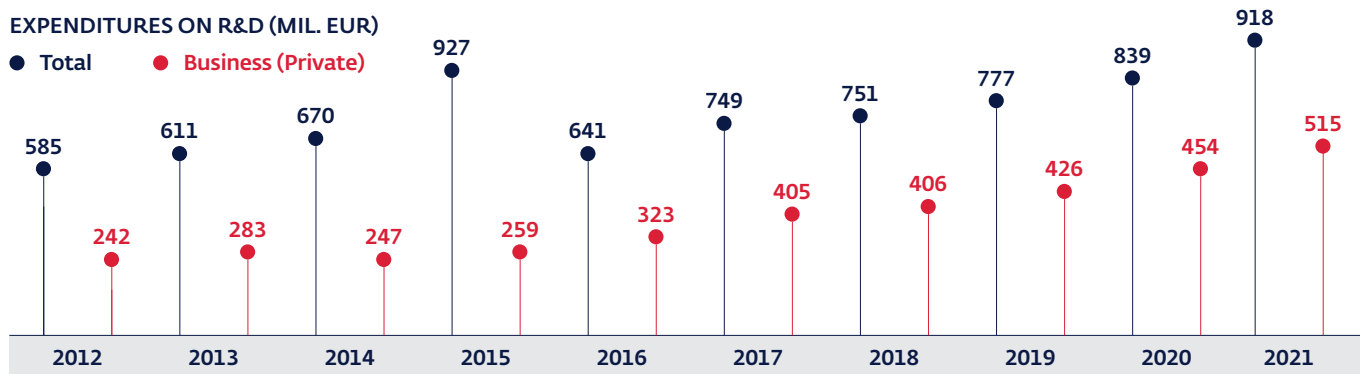


INOBAT
Batteries for
electric vehicles

There are other notable sectors in which Slovak companies manage to push the frontiers of technological advancement.

Slovak R&D Sector in Figures

In the past decade, Slovak R&D has experienced a significant growth, establishing various centres of excellence, research and technology centres. The R&D expenditures in Slovakia are driven mainly by the business sector and technical sciences.



AVERAGE GROSS MONTHLY SALARY LEVELS OF SELECTED R&D POSITIONS ACROSS SLOVAKIA

POSITION	WESTERN SLOVAKIA	CENTRAL SLOVAKIA	EASTERN SLOVAKIA
Robotics Engineer	1,400 – 2,500 €	1,250 – 2,400 €	1,150 – 2,300 €
Chemical Engineer	1,650 – 2,400 €	1,500 – 2,200 €	1,500 – 2,200 €
Hardware Engineer	1,500 – 4,000 €	1,300 – 3,350 €	1,450 – 3,750€
Test Engineer	1,500 – 4,000 €	1,300 – 3,350 €	1,450 – 3,750€
FEM Specialist	1,900 – 2,900 €	1,800 – 2,600 €	1,800 – 2,600 €
Electrical Design Engineer	1,800 – 2,800 €	1,650 – 2,400 €	1,450 – 2,300 €
Mechanical Design Engineer	1,800 – 2,800 €	1,650 – 2,400 €	1,450 – 2,300 €
Design Leader	1,600 – 2,500 €	1,400 – 2,200 €	1,300 – 2,300 €
Six Sigma Consultant	2,500 – 4,000 €	2,300 – 3,800 €	2,200 – 3,750 €

Source: Statistical Office of the Slovak Republic: Yearbook of Science and Technology (2022); Adecco (2023)

National Strategy for Research, Development and Innovation 2030

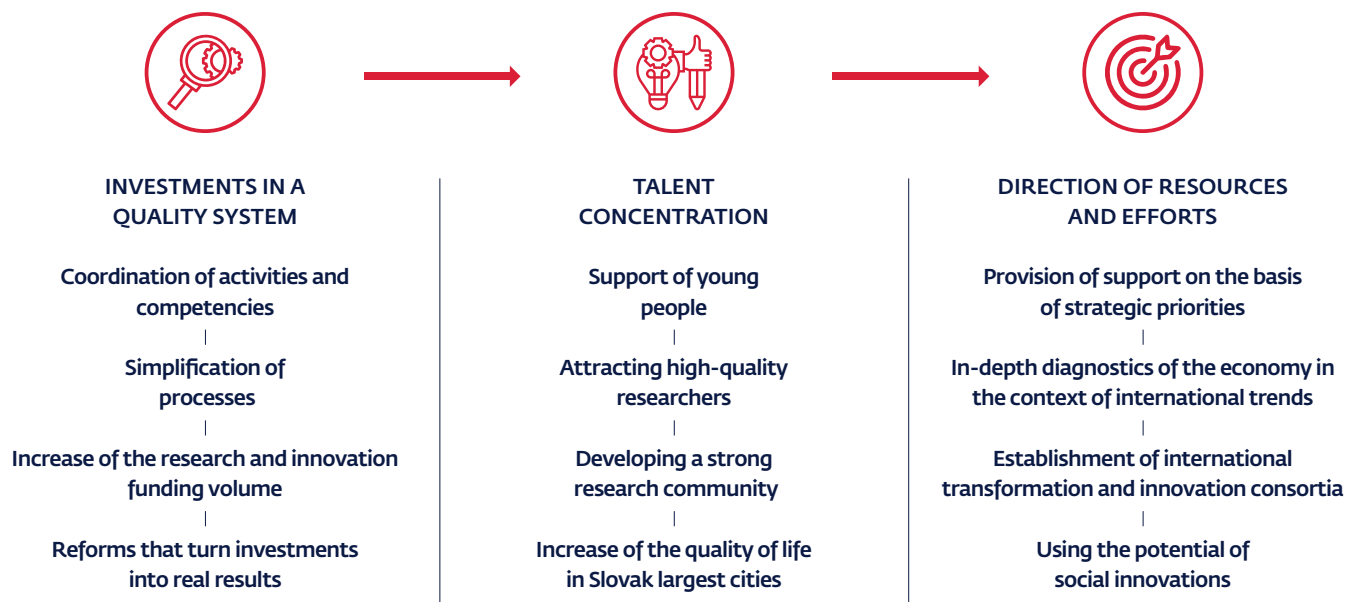
Slovakia has a clear plan to increase the competitiveness of its economy and quality of life by investments and reforms in the field of R&D&I. The national strategy, adopted by the Slovak Government in March 2023, presents a vision of how to make Slovakia a better place for research, development and innovation – and thus also a better place for life.

Thanks to complex reforms and new investments in research and innovation, Slovakia will transform its industry, accelerate economic growth and become again more attractive destination for highly qualified talent and companies creating high added value.

The strategy includes an action plan with a set of 91 measures to increase the innovation performance of Slovakia, which correspond to individual categories of the National Strategy.

KEY AREAS:

- Predictable funding into a quality system allowing researchers and innovators to focus on promising projects
- Development, attraction and retention of talents from Slovakia and abroad
- Tools to prioritize areas of R&D in which Slovakia has the ambition and potential to excel

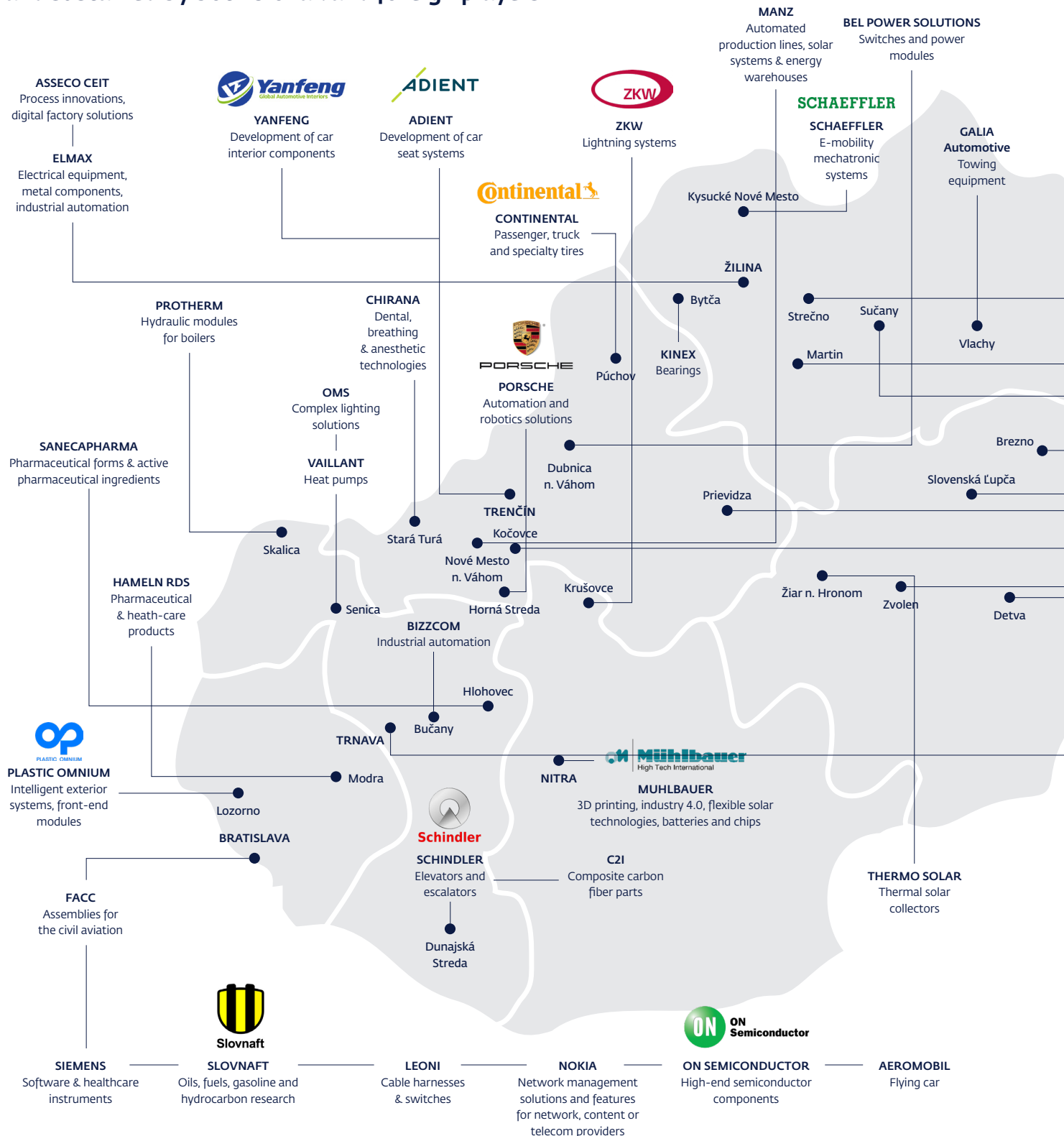


The strategy's success will be evaluated based on following indicators:

- Improvement of Slovakia's position in the European Innovation Scoreboard ranking by 10 places (from 24th to 14th)
- Increase investments in R&D to 2% of GDP (of which 1.2% from private sector)
- Attract 25,000 highly qualified people from abroad

Network of Private R&D Operations in Slovakia

Slovakia has both substantial established and potential capabilities for the R&D. Innovation is being stimulated throughout the economy and sustained by both Slovak and foreign players.



Source: Webpages of respective companies (2023)



WHIRLPOOL
Household appliances

TATRAVAGÓNKA
Intelligent logistic systems

IMUNA
New medicines

KRAUSS MAFFEI TECHNOLOGIES
Switchboard cabinets

ROBOTEC
Robotisation & automation

WELDING
Automation welding solutions

HELLA
Lightning systems

CHEMOSVIT FOLIE
Resins, films, inks & adhesives

FRANKE
Automation solutions

VONSCH
Electronics, energy storages and software

SPINEA
EXCELLENCE IN MOTION
SPINEA TECHNOLOGIES
Mechatronic technologies, process innovations

ESOX PLAST
Plastic components

CEMM THOME
Interior lightings

ELCOM
Cash registers & industrial PCs

Svit

Poprad

Spišská Nová Ves

embraco

EMBRACO
Hermetic cooling compressors for reffridgeration

Michalovce

BIOTIKA
R&D in the field of fermentation, isolation processes and analytical chemistry

KOŠICE

Veľká Ida

IEE SENSING
Electronic sensors

HBM PHARMA
Pharmaceutical products



CONTINENTAL
Brake systems

SLAVIA
Machinery, welding tools, hydraulic components

B/S/H/
BSH DRIVES & PUMPS
Electric motors and pumps

GRONBACH
Metal and plastic components & complex assemblies

TAES
Development of production and assembly lines, CNC machines

MinebeaMitsumi
Passion to Create Value through Difference

MINEBEAMITSUMI
R&D of mechatronic drive devices and electric motors for industry

U-SHIN
Control panels and access control systems

FAURECIA
Automotive interior components

DB BIOTECH
Early cancer diagnostics

ZTS VVÚ KOŠICE
Equipment and production lines

RV MAGNETICS
Custom passive sensors



BROSE
Mechatronic components
RUBIG
Development of solutions in the field of material technology



ZF
Powertrain modules

BOGE
Rubber and plastic components



OPTOTUNE
Industrial optical components



MATADOR
Stamping tools, industrial automation

ESET
Security software

GA DRILLING
Milling and deep-drilling

MICROSTEP
Control systems for machine tools



PHOTONEO
Robotic vision solutions



INNOVATRICS
Biometric technologies

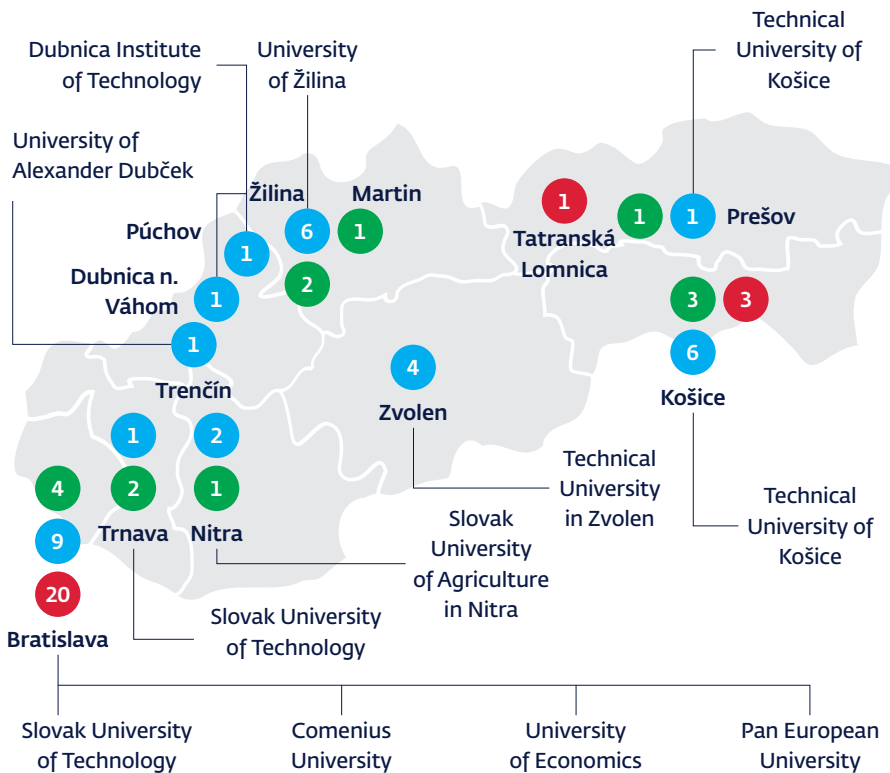
SYLEX
Optical interconnect solutions and fiber optic sensing/monitoring solutions

Favourable Public R&D & Innovation Infrastructure

The public R&D infrastructure in Slovakia consists of highly competitive technical faculties at universities located all around the country, as well as of a wide network of institutes of the Slovak Academy of Sciences. Strong cooperation partnerships of both local and foreign companies, universities and research institutions is characteristic for Slovak R&D ecosystem.

PUBLIC R&D NETWORK

Numbers in the map correspond with the number of technical/ICT faculties, university science parks & technical research institutes of the Slovak Academy of Sciences in respective cities.



24

technical institutes of the Slovak Academy of Sciences

7

technical universities

32

technical & ICT faculties

14

science parks

30 ths

students in technical & IT programmes

11 ths

graduates in technical & IT programmes

Slovak Academy of Sciences

Slovak Academy of Sciences (SAS) is a public research institution established in 1942. It consists of 48 organisations where more than 3,000 scientists & approximately 500 PhD students conduct their research in a wide range of fields.

Institute of Materials and Machine Mechanics (Bratislava)

- advanced metallic materials R&D
- Partners & International Cooperation
- European Space Agency, Hyundai Motor Europe

Institute of Electrical Engineering (Bratislava)

- semiconductors
- microelectronic sensors & detectors
- applied superconductivity
- Partners & International Cooperation
- CERN, Victoria University

Institute of Informatics (Bratislava)

- ICT
- nano- & micro-structures
- robotics
- artificial intelligence

Partners & International Cooperation

- IEEE and ESFRI

Institute of Experimental Physics (Košice)

- applied physics
- chemical sciences
- biological sciences
- nanotechnology

Partners & International Cooperation

- CERN, European Space Agency



Source: Slovak Centre of Scientific & Technical Information for the academic year 2022/2023; Slovak Academy of Sciences, SARIO (2023)

R&D Specialisation at the Largest Slovak Universities



SLOVAK UNIVERSITY OF TECHNOLOGY IN BRATISLAVA

Faculty of Electrical Engineering and IT

- National Centre of Robotics
- National Centre for Space Engineering
- Partners & International Cooperation**
- Siemens, Matador, Volkswagen

Faculty of Mechanical Engineering

- manufacturing technologies
- recycling of materials for the purpose of composite production
- Partners & International Cooperation**
- Volkswagen, Schaeffler, Brose

Faculty of Informatics & Information Technologies

- data analysis and information processing
- artificial intelligence
- cybersecurity
- Partners & International Cooperation**
- ESET (a specialised IT research centre in cooperation with the Faculty of Mathematics, Physics & Informatics of Comenius University)

Faculty of Material Sciences and Technology in Trnava

- SlovakION, one of the CEE's leading research centres for ion beam & plasma technologies in materials engineering & nanotechnology
- Partners & International Cooperation**
- Johnson Controls, Bosch

Faculty of Chemical and Food Technology

- biotechnology
- chemical and biological protection of environment
- Partners & International Cooperation**
- Volkswagen, Mondi, Matador

University Science Park STU, Bratislava

- ICT, electrical, chemical & civil engineering
- industrial biotechnology



COMENIUS UNIVERSITY IN BRATISLAVA

Faculty of Mathematics, Physics & Informatics

- applied mathematics & physics
- computer sciences
- Partners & International Cooperation**
- PwC, Accenture

Faculty of Natural Sciences

- chemistry & chemical technology
- biotechnology & life sciences

Comenius University Science Park, Bratislava

- biotechnology, biomedicine



TECHNICAL UNIVERSITY
OF KOŠICE

TECHNICAL UNIVERSITY IN KOŠICE

Faculty of Electrical Engineering and Informatics

- cybernetics and artificial intelligence
- electronics & electrical engineering
- Partners & International Cooperation**
- MAGNA, Ness, VW, Embraco, Deutsche Telekom IT Solutions

Faculty of Mechanical Engineering

- manufacturing technologies
- green & alternative fuel mobility
- automation, mechatronics, robotics and production technology
- Partners & International Cooperation**
- Garrett Motion, Embraco, Faurecia, Magna PT, Mondi SCP, Siemens, MinebeaMitsumi

Faculty of Manufacturing Technologies with a seat in Prešov

- advanced technologies
- automobile and manufacturing technologies
- manufacturing and process engineering
- Partners & International Cooperation**
- Lear Corporation, Continental, Spinea

University Science Park TECHNICOM, Košice

- ICT, electrical, mechanical, civil & environmental engineering



UNIVERSITY OF ŽILINA

Faculty of Electrical Engineering and Information Technology

- ICT applied in transport and industry
- electronic systems & networks
- Partners & International Cooperation**
- Schaeffler, Siemens, Onsemi, Semikron

Faculty of Mechanical Engineering

- mechanical engineering
- materials engineering
- machines and equipment design
- automation of production systems
- Partners & International Cooperation**
- Siemens Healthineers, Whirlpool, VW, KIA, Continental, Brain IT

University Science Park, Žilina

- ICT, smart industrial & transportation systems, progressive materials

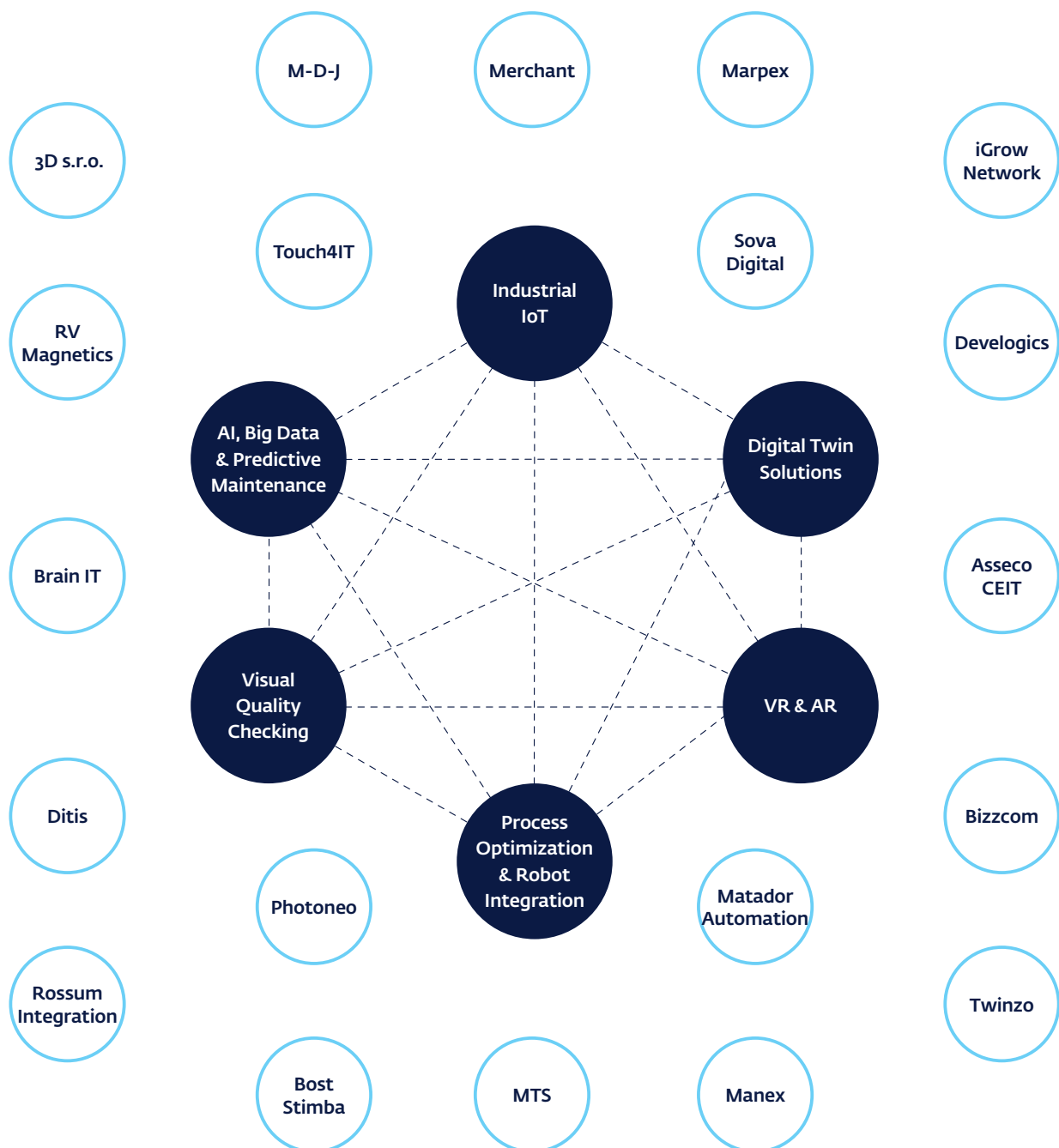
Source: Web pages of respective universities (2023)

Process Innovation Developed & Made in Slovakia

Apart from product development, Slovakia's strong industrial heritage has also created an ecosystem of local companies active in the field of production process optimisation.

As the implementation of Industry 4.0 is a necessity for all industrial facilities that want to maintain their competitive advantage, SARIO has created an entire service that aims to match the needs of the industry with the capabilities of the most advanced Slovak technology companies. From our experience, the Slovak Industry 4.0 competences focus mainly on areas highlighted below, the mentioned companies are just examples of local providers capable of delivering state of the art solutions:

Sample of the The Slovak Industry 4.0 Ecosystem



Sources: SARIO (2023)

SARIO

Innovation Sourcing

Innovate Your Business with Solutions Made in Slovakia!



SARIO Innovation Sourcing — a platform of the Slovak Investment and Trade Development Agency (SARIO) matching the needs of its major clients — large investors established in Slovakia — with competencies of Slovak tech companies providing mainly Industry 4.0 and advanced IT solutions.

SARIO organises tailor-made workshops, which on one side serve as a business development channel for Slovak solution providers, on the other are aimed to innovate technological processes of its major clients. These services are not limited to the borders of Slovakia and they sometimes focus also on venture capital.

SARIO INNOVATION SERVICES FOCUS ON, BUT ARE NOT LIMITED TO

- **Industry** — automation, predictive maintenance, quality control, digital factory solutions
- **Product development** — design, prototyping, testing, tooling
- **Services sector** — software automation, outsourcing, cybersecurity, big data & AI

OUR TRACK RECORD (SELECTED EVENTS)

- **PSA/Stellantis Innovation Day — 5 workshops**, Trnava (Slovakia)
- **VW/Audi Innovation Sourcing Day — product innovation**, Budapest, (Hungary)
- **Jaguar Land Rover Innovation Workshop — process innovation**, Nitra (Slovakia)
- **Integr8 Conference — process innovation**, Detroit (USA)
- **BROSE Innovation Day — process innovation**, Prievidza (Slovakia)
- **OSRAM Innovation Workshop — process innovation**, Bratislava (Slovakia)

The agency plans to scale these services by addressing a wider range of clients from various sectors and identifying new potential Slovak solution providers, capable of succeeding on international markets.



“Slovak tech firms can bring innovation to global companies on the Slovak market, and even abroad. During last years, innovation sourcing platform has become an integral part of SARIO services for new as well as established investors, including the largest players.”

Marek Kopanický, Senior Consultant & Innovation Sourcing Lead, SARIO



“Our vision is to help transform Slovakia into a technological & innovative hub and become the partner of choice for companies considering to invest in Central Europe.”

Róbert Šimončíč, CEO SARIO

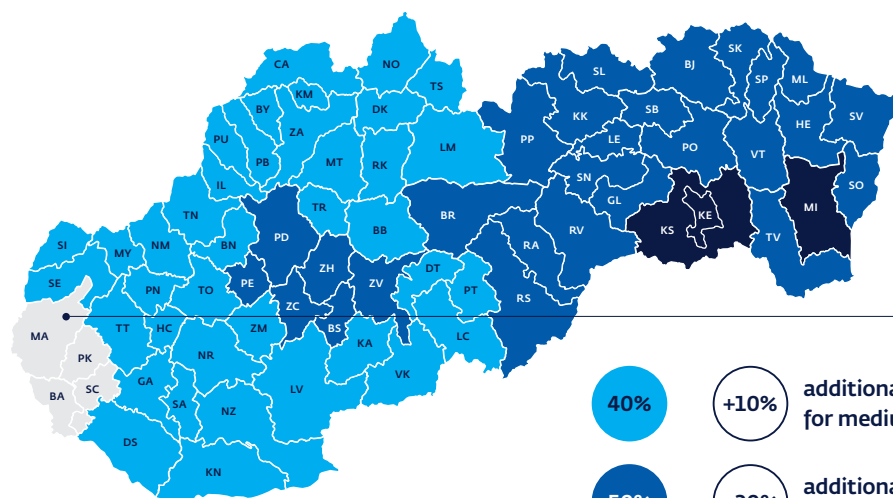
Schemes Designed for Supporting R&D in Slovakia

MAXIMUM REGIONAL INVESTMENT AID INTENSITY

The primary goal of the investment incentives is to motivate investors to place their new projects in regions with higher unemployment and to attract projects with higher added value.



Districts in Bratislava region are excluded from the investment aid scheme



40%

+10%

additional incentives for medium-sized enterprises

50%

+20%

additional incentives for small and micro-sized enterprises

60%

+10%

additional incentives for investment projects carried out in regions included in Just Transition Plan

ELIGIBLE COSTS

- Costs of land acquisition
- Costs of buildings acquisition & construction
- Costs of new technological equipment and machinery acquisition
- Intangible long-term assets — licences, patents, etc.
- Rent of new land/building

OR

- Total wage costs of all new employees calculated over a period of 2 years

FORMS OF INVESTMENT INCENTIVES

- Corporate income tax relief
- Cash grant
- Contributions for the newly created jobs
- Rent/Sale of real estate for a discounted price

SUPERDEDUCTION

- is automatically claimable in tax return form
- is not subject to any application procedures nor subject to an approval by any state authority
- all sectors are eligible
- is applicable throughout Slovakia
- if the claim cannot be applied in the given tax period, it is transferable to up to 5 consecutive tax periods

EXAMPLES OF DEDUCTIBLE COSTS

- Wages and related contributions
- Material and inventory
- Power and utility supplies
- Tax depreciation of long-term assets
- Certification expenses
- Specialised software licence, etc.

*An amendment to the Governmental Regulation no. 195/2018 Coll. is currently in the legislation process. Map of maximum intensities above already reflects these changes (maximum aid intensity in the Western Slovakia increased from 30% to 40%). Please contact us at invest@sario.sk for more information (including minimum conditions).

Sources: SARIO (2023)



AIM INVESTMENT AWARDS UAE 2022

CEE & TURKEY REGION
Best Investment Promotion Agency in 2022



SARIO Profile

Slovak Investment and Trade Development Agency (SARIO) is a governmental investment and trade promotion agency of the Slovak Republic. The agency was established in 2001 and it operates under the Ministry of Economy of the Slovak Republic.

01 INVESTMENT SERVICES

FOR POTENTIAL INVESTORS

- investment environment overview
- assistance with investment projects implementation
- starting a business consultancy
- sector and regional analyses
- investment incentives consultancy
- site location & suitable real estate consultancy

FOR ESTABLISHED INVESTORS

- identification of local suppliers, service providers
- assistance with expansion preparation and execution
- assistance with Industry 4.0 solutions and R&D implementation

02 FOREIGN TRADE SERVICES

IF YOU ARE LOOKING FOR

- Slovak supplier or sub-contractor
- information about Slovak export/trade environment
- sourcing opportunities
- forming a joint venture, production cooperation or other forms of partnership with a Slovak partner

SERVICES FOR EXPORTERS

- information on foreign territories
- customized search for foreign partners
- online database of business opportunities
- export Training Centre
- subcontracting assistance

03 INNOVATION SOURCING

- matching local tech companies with the operations of large companies that plan to implement innovative solutions to streamline and optimize their processes
- focused mostly on Industry 4.0 solutions such as digitalization, intelligent automation, and robotics as well as advanced and complex IT solutions for various industries
- based on a database of more than 300 local tech companies which is constantly updated and expanded

04 SLOVAK SPACE OFFICE

FOR SLOVAK ENTITIES

- tailor-made sector entry consultancy
- startup creation through hackathons and incubation programs
- cooperation opportunities through matchmaking events
- internationalization of the Slovak space companies and research institutions

FOR FOREIGN PARTNERS

- customized search for local partners
- assistance with establishing branch in Slovakia
- cooperation on space industry events

**SARIO IS YOUR ONE STOP SHOP FOR INVESTMENT & TRADE IN SLOVAKIA.
TALK TO US TODAY!**

SARIO | Slovak Investment and Trade Development Agency

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The information in this publication needs to be in every case double-checked to ensure that it is up to date.

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