

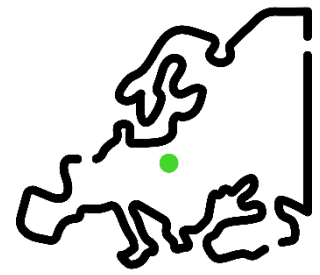
Łukasiewicz
Research Network

Łukasiewicz Research Network

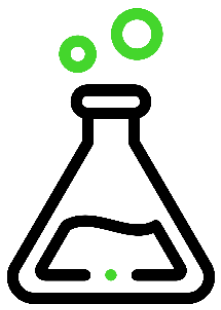
Science for Business



What make Łukasiewicz exceptional?



The third-largest research network in Europe
Leading market participant in R&D in Central and Eastern Europe



Modern research and development network
Over 4200 engineers and scientists that run 1600 R&D projects in 440 laboratories



The first-class research infrastructure
3,762 key elements of R&D equipment, 497 of which are unique in Poland



R3-PowerUP (H2020, 2017 - 2023)

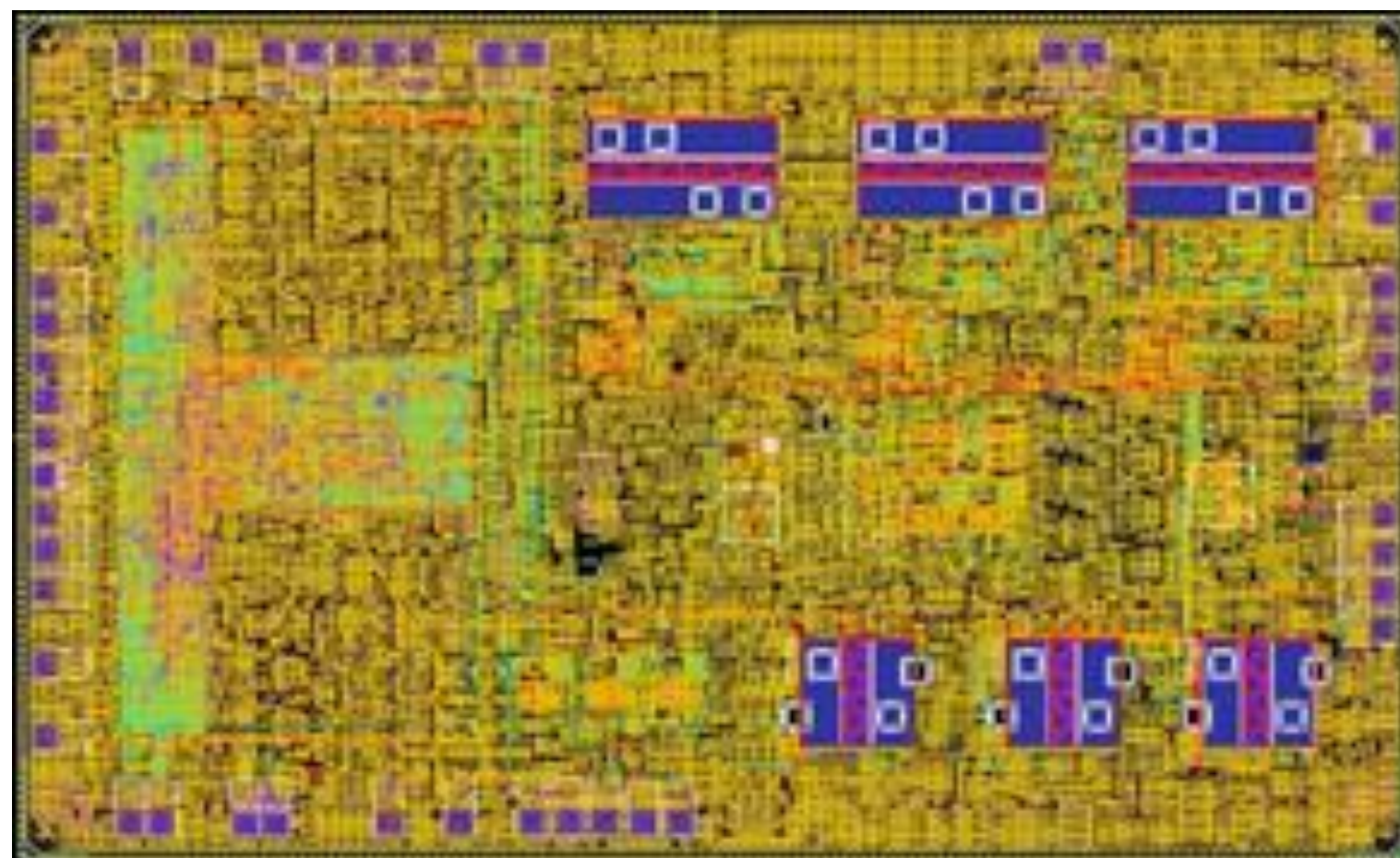
300mm Pilot Line for Smart Power and Power Discretes



R3-PowerUP is committed to challenge the following objectives:

- Development and demonstration of a brand new 300mm advanced manufacturing facility addressing a multi-KET Pilot Line (i.e. Nanoelectronics, Nanotech, Adv. Manufacturing)
- The Pilot Line will build on Digital Factory and Industry 4.0 principles, enforcing a flexible, adaptive and reliable facility that will push forward the state of the art of nanoelectronics manufacturing in Europe
- It will push a major improvement in productivity and competitiveness for integrated IC solutions for smart power and power discretes technologies.
- The application of such technologies will be a breakthrough enabler for Energy Efficiency and CO₂ Reduction worldwide, in line with COP21's resolution.

Łukasiewicz-IMiF is responsible (design, verification and testing) for one of the project demonstrator - BLDC driver in the BCD9 technology by STMicroelectronics



Project coordinator: Roberto Zafalon
Institution: STMicroelectronics
Total project budget: M€ 181



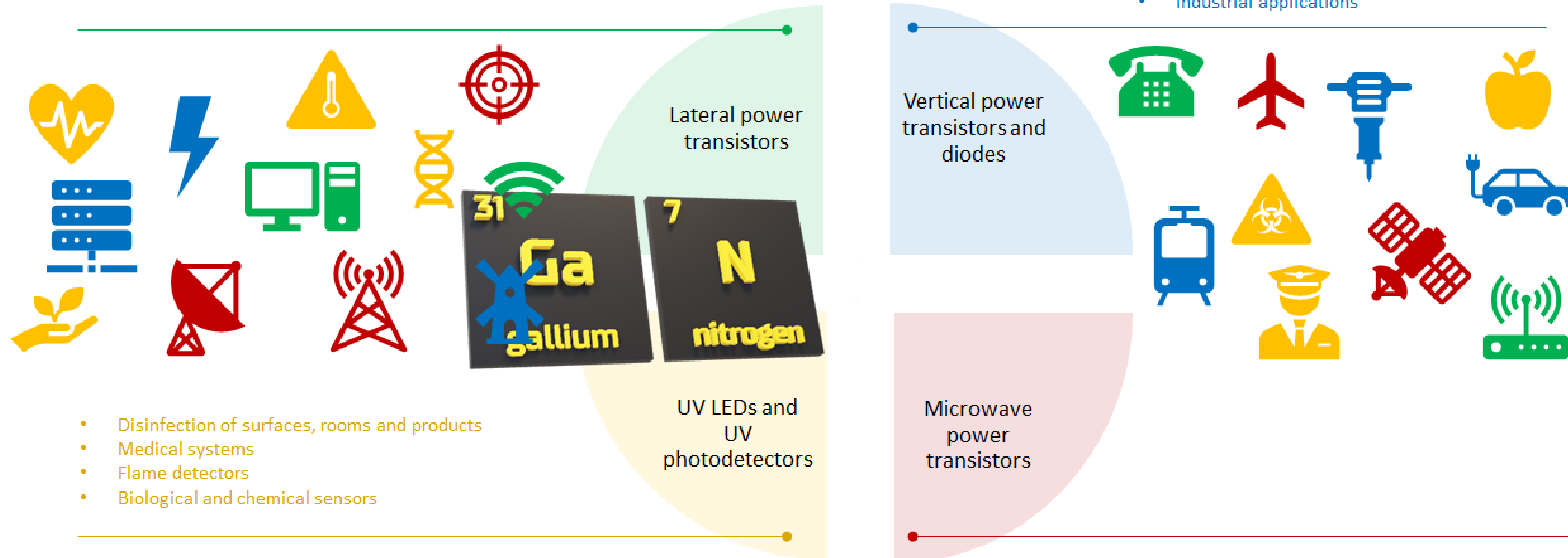
35 Partners from 14 countries

r3powerup.eu

GaN-based semiconductor devices

- Power supplies
- consumer electronic and computer equipment

- DC / DC converters
- Inverters
- Industrial applications



- Disinfection of surfaces, rooms and products
- Medical systems
- Flame detectors
- Biological and chemical sensors

 **Łukasiewicz**
Instytut Mikroelektroniki
i Fotoniki

Transistors

 **Łukasiewicz**
Instytut Elektrotechniki

Transistors

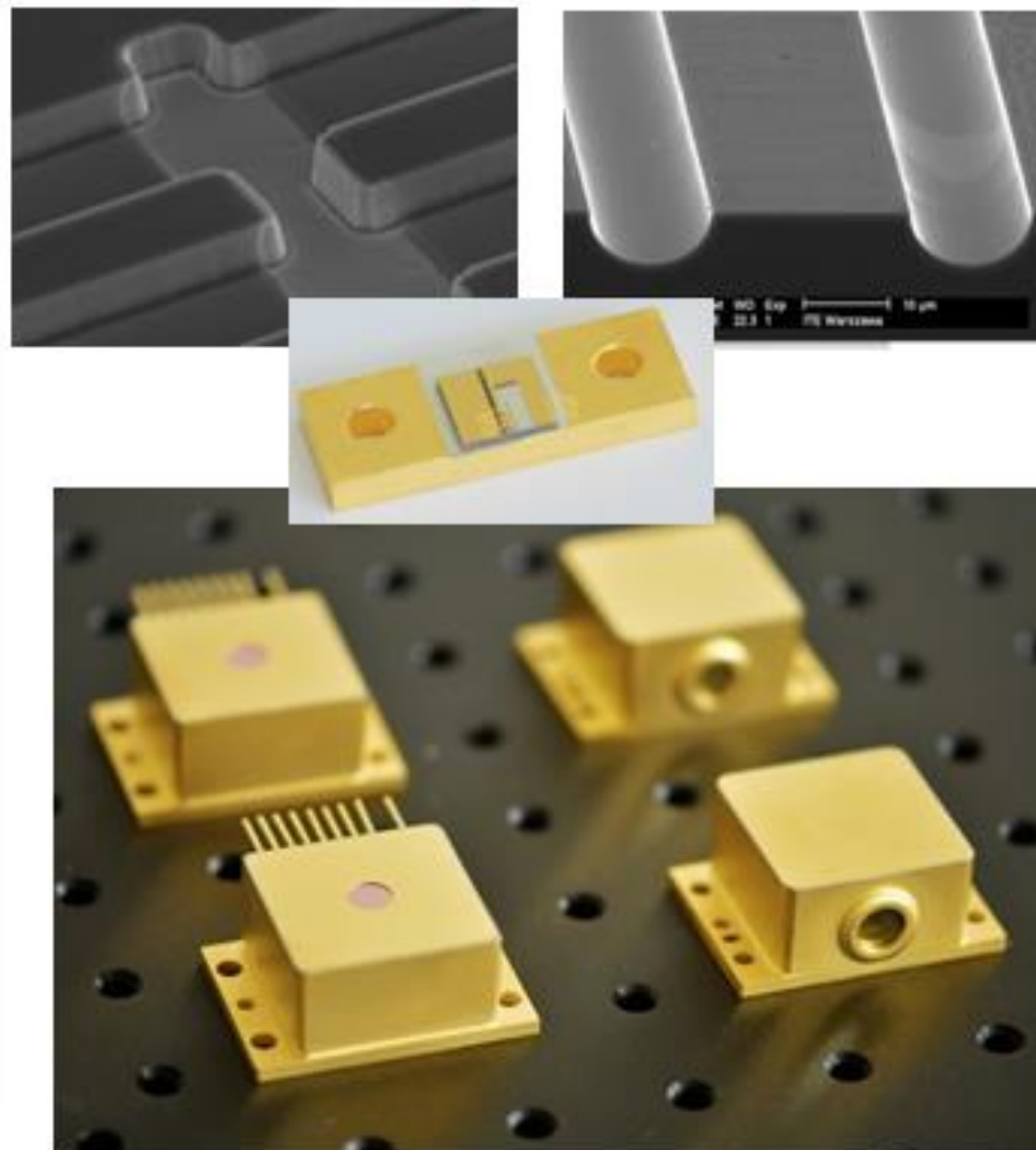
Power Supplies

 **DACPOL**  **Signify**  **Amica**
for living

 **LARS**
LIGHTING

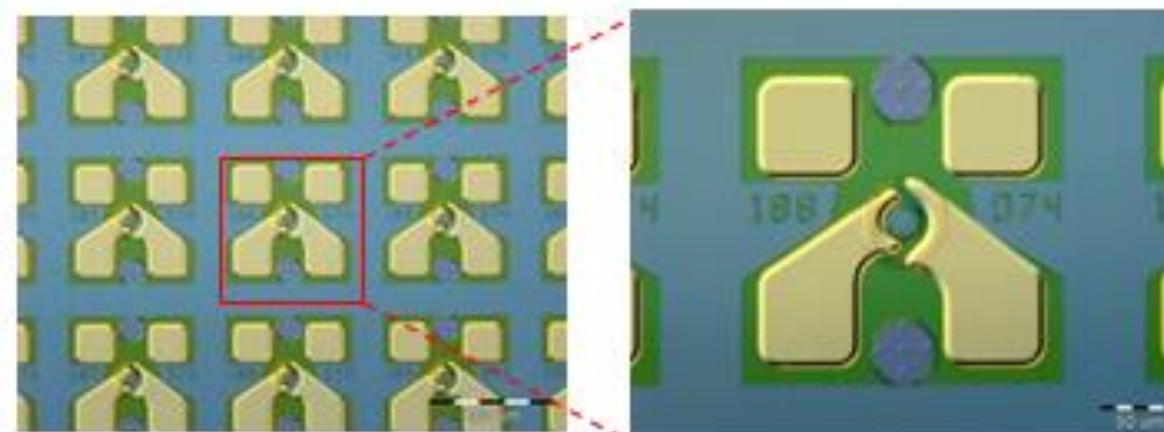
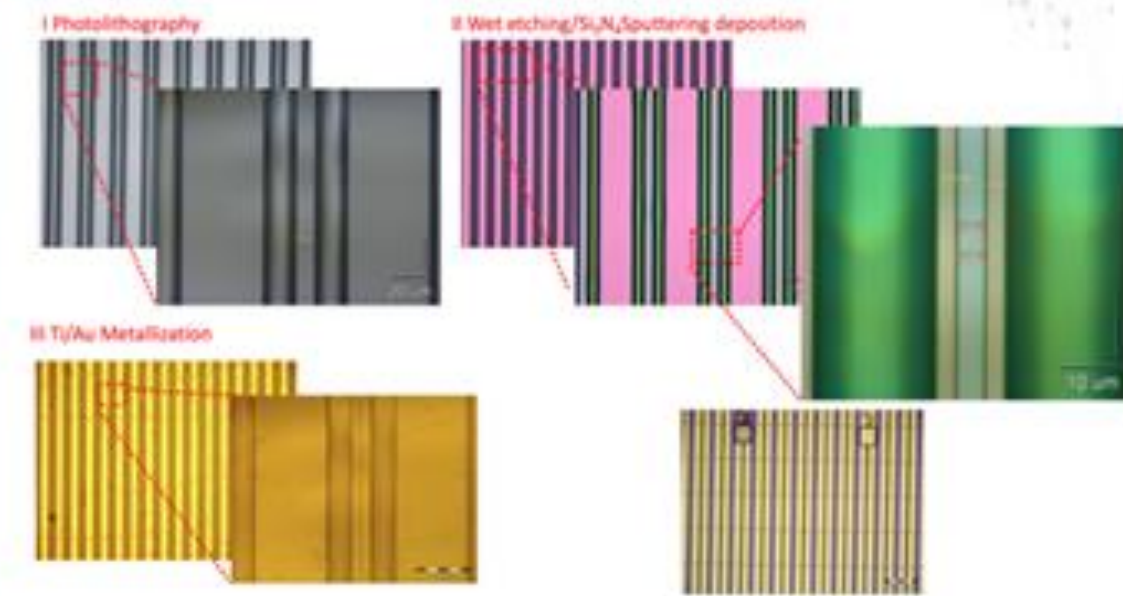
- Design, growth and fabrication of optoelectronic devices
- Expert knowledge of physics and technology of semiconductor devices
- Development of optoelectronic solutions tailored to the specific application requirements
- Small volume fabrication (short series)
- Development of technology within research projects and services
- Acting as R&D out-sourcing facility during development stage of project (proof-of-concept)

Quantum Cascade Laser: Mid IR: 4,4 - 10 μm & THz Range



Processing Facilities:

- Complete technological line of $A_{III}B_{IV}$ semiconductor compounds



Current Research:



TECHMATSTRATEG-III
Photronics Integrated Circuits
technologies for MID-IR

Basic figures about project

3

Consortium partners: PW, VIGO

~ 30 mln zł

Project value

3 lata

Duration

„ The result of the project will be innovation in the form of Application Specific Photonic Integrated Circuits (ASPIC) designed to work in the mid-infrared range (3-5.5 μm). In particular, different building blocks necessary to define ASPICs will be designed, manufactured and tested. „



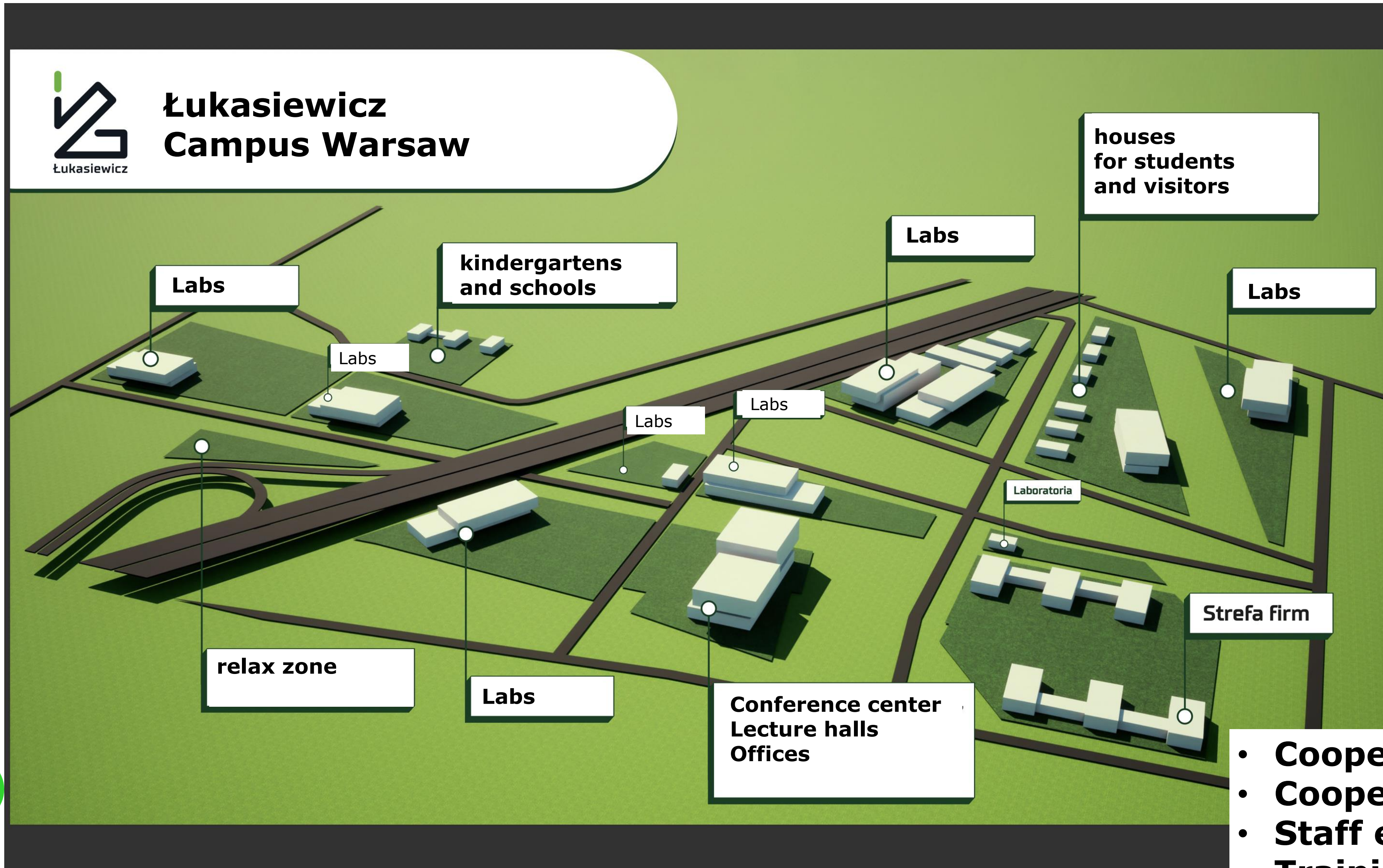


Łukasiewicz's investment plans in the area of microelectronics

2026

250M EUR

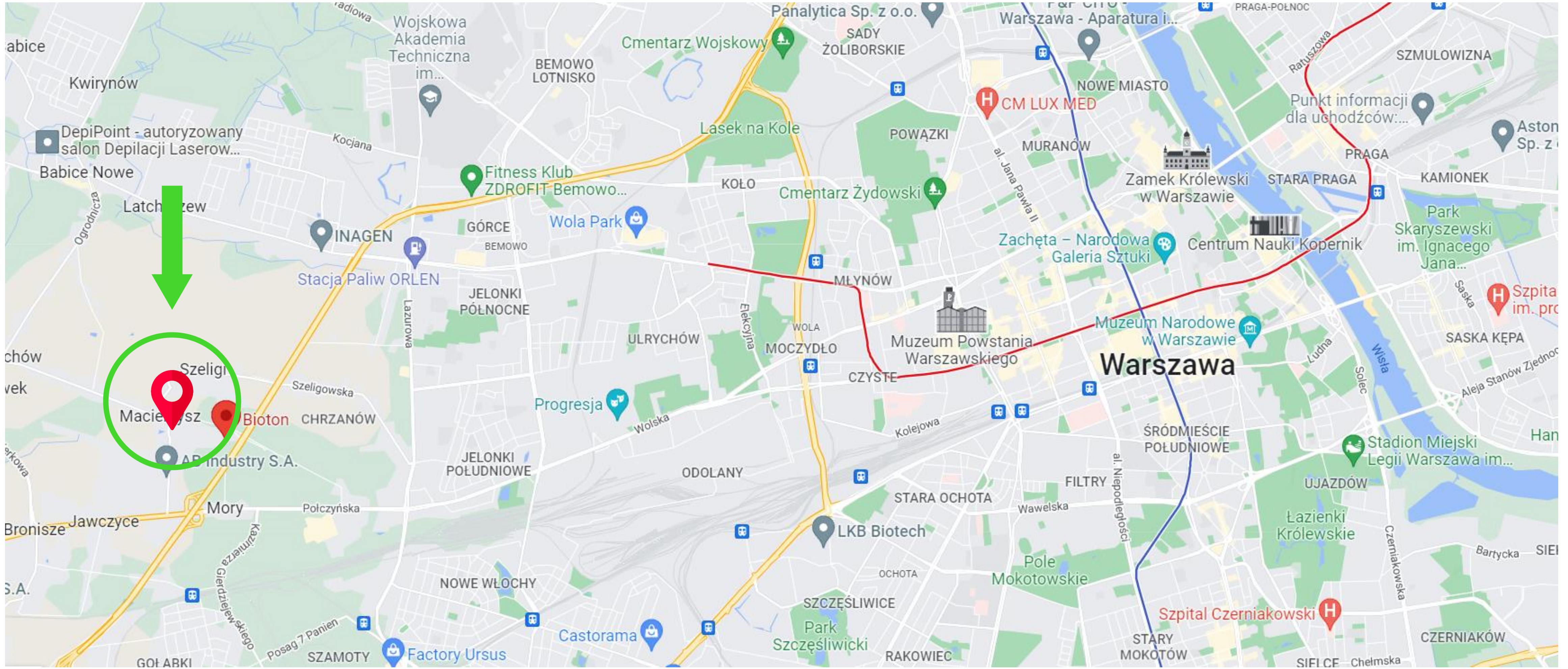
1500+ engineers & scientists



- Cooperative research agenda
- Cooperative R&D projects
- Staff exchange
- Training



State-of-the-art infrastructure in new 57 ha location



Łukasiewicz as National Contact Point for

HORIZON
europa

in microelectronics and photonics