LIAA

Latvijas Investīciju un attīstības aģentūra
Investment and Development Agency of Latvia

PHOTONICS & SMART MATERIALS

Contents

1. Reasons to choose Latvia

Location

Territory: 64.6 ths.sq.km
Capital : Riga
Population: 1,9 million
Language: Latvian
Currency: euro (EUR)

Superior Connectivity

Quick & easy access from Riga to the whole Europe

RIX airport

airBaltic most punctual airline in Europe

100+ direct flights

20min to the city centre

~1,5-hour flight to Berlin, Copenhagen, Kyiv, Minsk, Moscow, Prague, Oslo, Stockholm, Warsaw

~2,5-hour flight to Amsterdam, Brussels, Frankfurt, London, Milan, Munich, Stuttgart, Paris, Zurich

Rail Baltica

249 km/h speed for passenger trains

5-hour trip Riga–Warsaw

by 2026 the railway connection Tallinn-Riga-Kaunas

Equal treatment of foreign investors

Same rights and opportunities as for the local business

By law, foreign investors have the same rights & duties as local investors

Foreign companies registered in Latvia are entitled to buy land & property

The foreign investor may be sole founder & owner of a company

The foreign investor may request a temporary residence permit.

Efficient start-up procedure with company registration in 1-3 days

Active dialogue between the Foreign Investor`s Council in Latvia (FICIL) & government institutions.

Inclusive, Innovative & Digital

Latvia is a diverse, digitally advanced & cost-efficient country in the EU

#1

in the EU with the largest share of women in management – 56%
(Eurostat, 2019)

#1

the most startup-friendly country in the world
(Index Ventures, 2021)

#4

in the EU in eGovernment Benchmark 2020
(EC, 2020)

#19

in the world Doing Business
(The World Bank, 2020)

e-Governance

with state and municipality Digital Transformation roadmap for 2021-2027

e-Signature

digital ID for signing documents and remote access to 120+ government services

Competitive Tax Policy

Transparent tax policy that secures long-term stability & prosperity

0%

Corporate Income Tax for reinvested profits & 20% CIT for distributed profit

#2

among OECD countries in International Tax Competitiveness Index (Tax Foundation, 2020)

20/23/31%

Progressive Personal Income Tax with 20% for annual income up to € 20,004

21%

Value-added tax with 0%, 5% & 12% rates for particular types of products & services

34,09%

Social Tax – 10,50% paid by the employee, & 23,59% by the employer

#16

in the world in ease of paying taxes with only 7 payments (PwC, 2020)

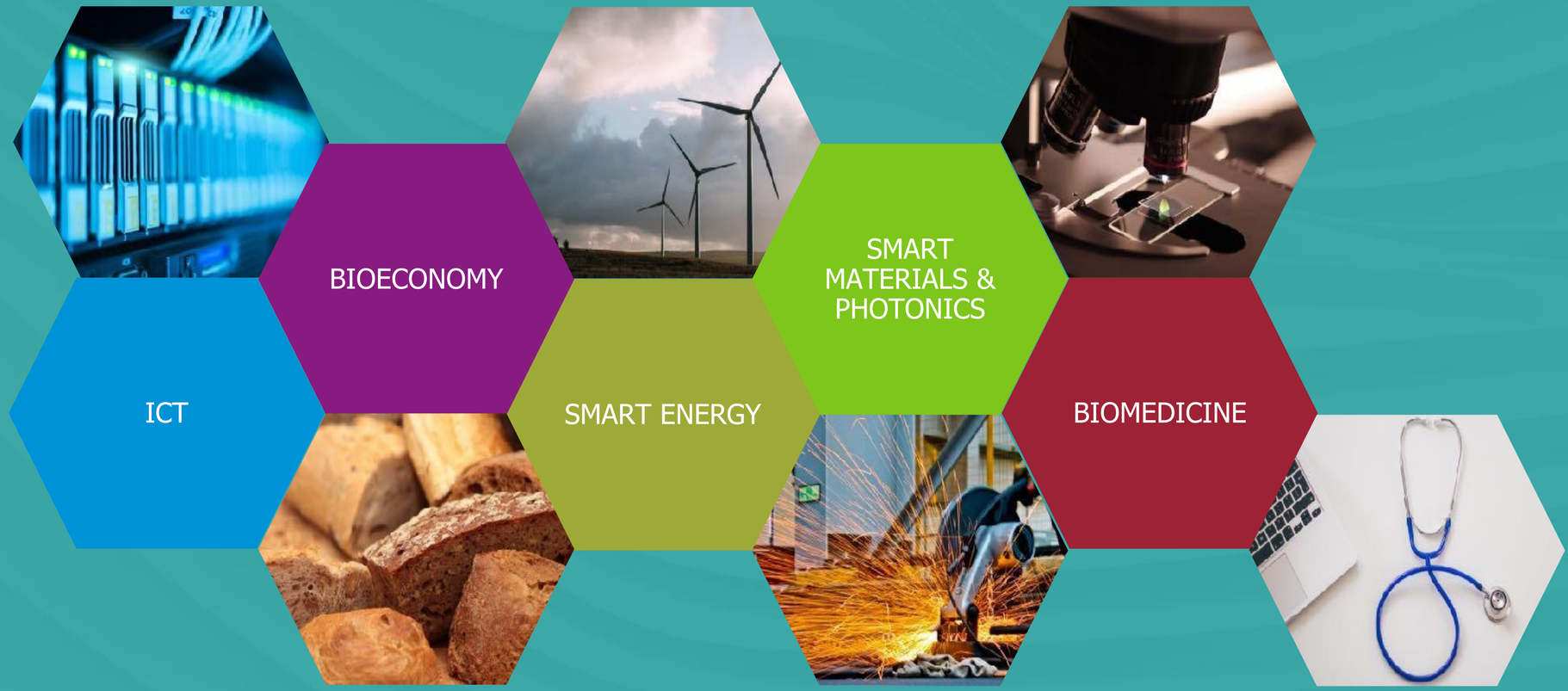
12 Key Industries

Development of industries and ecosystems with high value-added

- Life Science
- Food Processing
- ICT
- Smart City
- Healthcare
- Biomedicine
- Woodworking
- Green Technology
- Transport & Storage
- Global Business Services
- Engineering & Metalworking
- Smart materials & Photonics

Five Smart Industries & Value-chains

Development of industries and ecosystems with high value-added



The Ecosystem Approach

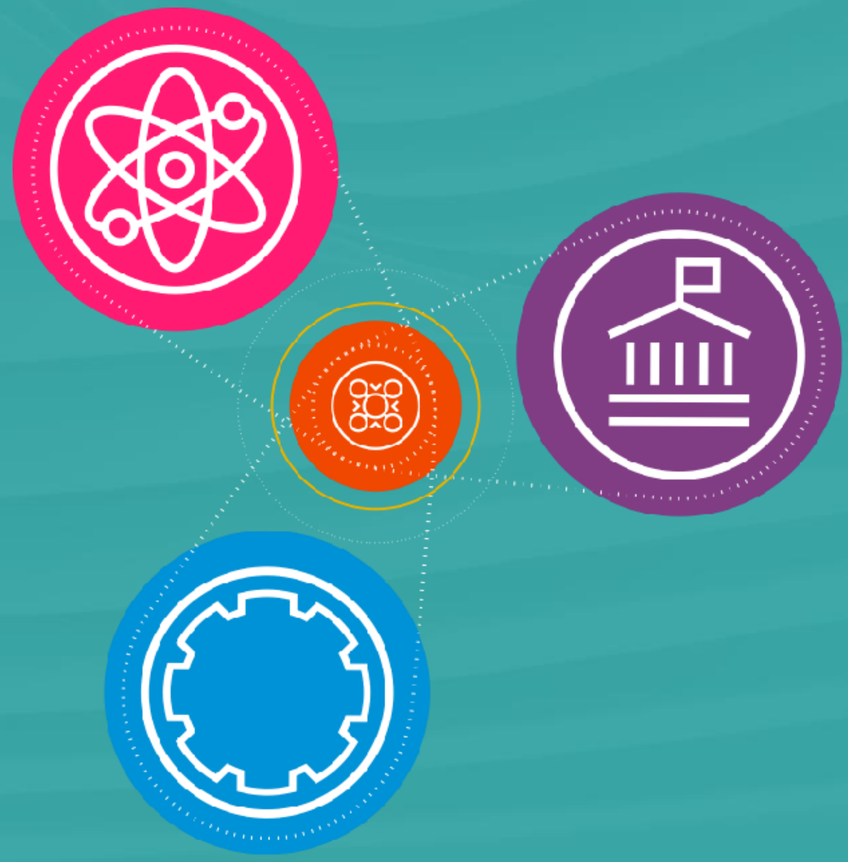
Development of industries and ecosystems with high value-added

Diverse ecosystems and strong collaboration:
INDUSTRY + ACADEMIA + POLICY MAKERS

Since 2014 Smart Specialization Strategy (RIS3) for Latvia is being developed – a strategy of economic transformation towards higher added value and more efficient use of resources.

5 strategic RIS3 areas have been set and ICT is one of them, playing an important horizontal value:

1. knowledge intensive bioeconomy;
2. biomedicine, medical technologies, biopharmacy and biotechnologies;
3. smart materials, technologies and engineering systems;
4. smart Energy;
5. information and communication technologies.

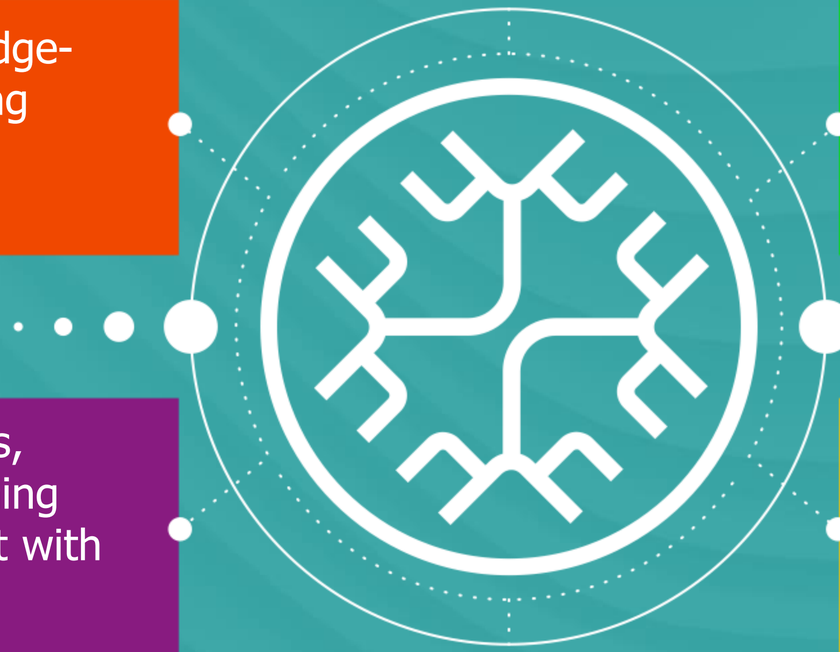


The Ecosystem Approach

Launching the ecosystem approach — a dynamic process of identifying prospective, knowledge-intensive value chains and mapping out the ecosystems. 3 ecosystems so far, more to come.

Identifying prospective, knowledge-intensive value chains & mapping out the ecosystems

Bringing together ecosystem`s expertise, defining common goals & challenges



Benchmarking ecosystem results, improving the approach, finetuning processes (process development with the OECD)

Proactively facilitate reach of these goals with the available support incentives.

Incentives & business support mechanisms

Local companies have access to a broad range of 40+ incentives

IDEA DEVELOPMENT (4)

The Idea Cup
Business Incubators
Accelerators
Events and support of municipalities

BUSINESS AND INNOVATIONS (24)

Startup benefits
Innovation vouchers
Cluster programmes
Financing programmes
Norwegian grants
Education and training of employees

EXPORT (7)

Participation in exhibitions abroad
Cluster programmes
Export credit guarantees
LIAA network support

SPECIAL ECONOMIC ZONES (5)

80% CIT and RE tax rebates in five special economic zones in Latvia

COVID-19 (4)

Tax reliefs
Loans and guarantees
Co-financing of salaries

Talent pool development

Excellent balance of skills, work ethics and costs

Profitable

Multilingual

Educated

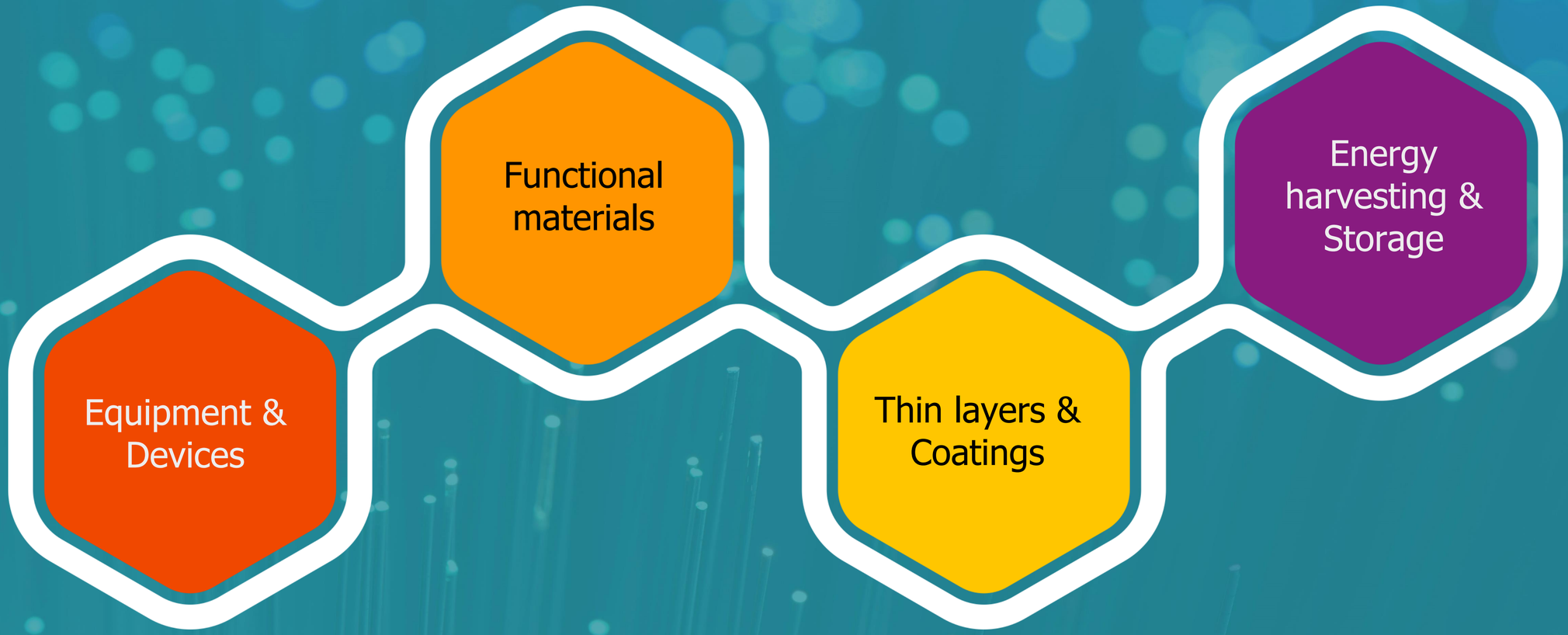
Nordic culture fit

95%
speaks at least 1 foreign language (English or Russian)

54%
speaks at least 2 foreign languages (English and Russian)

2. Overview of Smart Materials and Photonics

Main subsectors



We offer

1

Well-established supply chains in electronics, optics and lens manufacturing

2

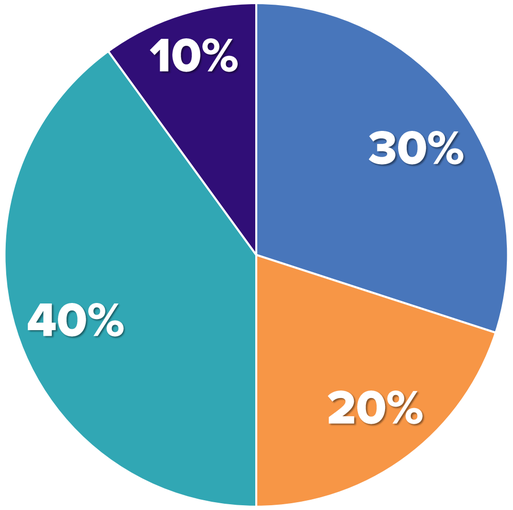
Excellent ecosystem involving industry leaders, research centers and public services

3

Supportive legislation for the production of various optical and electronic devices

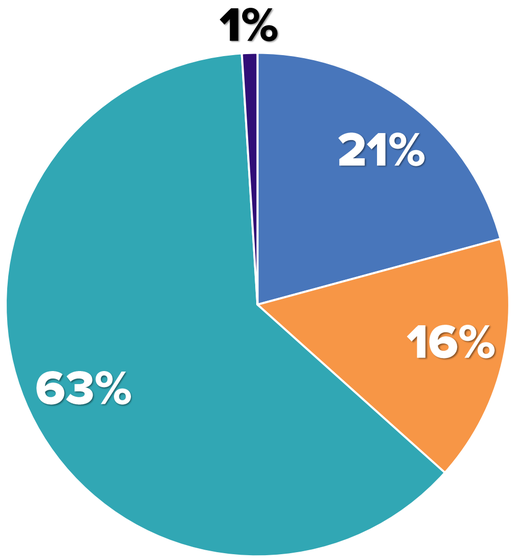
Competencies of the industry

Research



- Thin layers and coatings
- Equipment, devices
- Functional materials

Industry



- Thin layers and coatings
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Why Latvia?

WORLD CLASS, CUTTING EDGE & MARKET-LEADING PRODUCTS

ADVANCED DISPLAYS

World’s fastest optical switch technology

OPTICAL COMPONENTS

Spherical, aspherical and diffractive coated infrared IR lenses

MICROELECTRONIC COMPONENTS

Leading technologies in the Baltics and Nordic region

THIN FILM TECHNOLOGIES

Unique expertise in effective cooling of metallic foils, polymeric films and foam materials

SMART COATINGS ON GLASS AND ACRYLIC

Only glass in the world with >99% UV protection

OPTICAL FIBRES, BUNDLES, CABLES, LASER DELIVERY

World’s leading optical fibre production and R&D

Quantum excellence

LATVIA IS ONE OF THE LEADERS IN QUANTUM TECHNOLOGIES

Latvia has a solid base of **academic excellence in quantum theory** (quantum algorithms and quantum devices) that can afterwards be applied in industry collaboration.

The **intangible "startup capital"** means existing cooperation in active projects and project applications with all key players in the field of European quantum software (Dutch national consortium quantumdelta.nl, Paris quantum computing centre pcqc.fr), large technology companies (SAP, Bosch, Microsoft) and national metrology institutes (PTB in Germany, NPL UK).

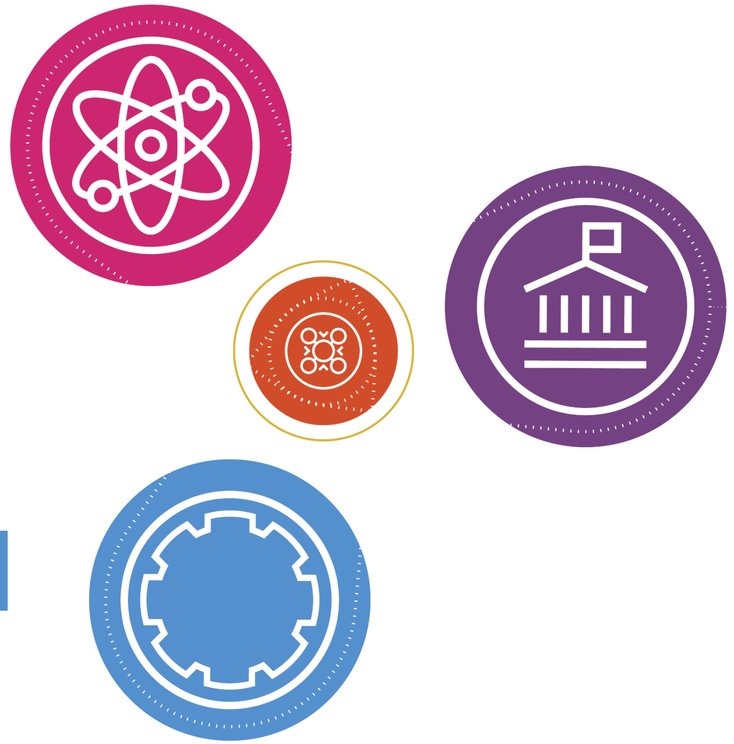
Andris Ambainis

Quantum Computing, Quantum Information Theory, Quantum Cryptography and Communication, Theory of Computing

Strong national ecosystem

OVER 100 YEARS OF EXPERIENCE IN ENGINEERING & MANUFACTURING

ACADEMIA



GOVERNMENT

INDUSTRY

Materize

ONE STEP SOLUTION TO LINK SCIENCE AND BUSINESS

40 years of experience

35M euro investments

200 employees

650 m² ISO certified cleanrooms

Single point of contact

Easy access to tools and expertise

Industrial project management

Environment for innovation

Top research centres in Latvia

Institute of Solid State Physics, (ISSP UL)

Funtional materials for electronics and photpnics, Nanotechnologies, nanocomposites, thin layers and coating technologies

Institute of Chemical Physics, University of Latvia (ICP UL)

Nanostructured materials – nanowires, nanotubes, nanoparticles

Institute of Atomic Physics and Spectroscopy, (IAPS UL)

Biophotonics, Quantum Optics, Optical Biosensors, Functional Nanomaterials

Faculty of Materials Science and Applied Chemistry, (RTU)

Nanofibers and catalysts, nanoparticles, nanocomposites & nanocoatings

Institute of Electronics and Computer Science (EDI)

Research & space data prcessing, Robotics, Smart sensors, IoT

Latvian State Institute of Wood Chemistry (LSIWC)

Environmentaly friendly low-waste technologies, biomass

Institute of Solid State Physics

INSTITUTE OF SOLID STATE PHYSICS
UNIVERSITY OF LATVIA

SCIENTIFIC EXCELLENCE CENTRE

TOP 1 materials research and innovation centre in the Baltics

40 years experience in material science from complex oxides to organic semiconductors

700 m² of ISO class 7-8 cleanroom facility

230 employees / 120 PhD

Riga Technical University

OLDEST UNIVERSITY IN THE BALTICS

68% of students study engineering or related field

5.17M euros total funding for R&D and equipment in 4 years

BBCE is one of the leading Baltic Biomaterials Centre of Excellence

42 different institutes of science and research

University of Latvia

ONE OF THE LARGEST UNIVERSITIES IN LATVIA

UNIVERSITY OF LATVIA
INSTITUTE OF ATOMIC PHYSICS AND SPECTROSCOPY

1994 is the foundation year of the Institute of Atomic Physics and Spectroscopy (IAPS)

6 different labs for the Institute of Atomic Physics and Spectroscopy

2014 is the year when ICP became members of EUROFusion consortium

1988 is the foundation year of the Institute of Chemical Physics (ICP)

Institute of Electronics and Computer Science

ELEKTRONIKAS UN DATORZINĀTNU INSTITŪTS

INSTITUTE OF ELECTRONICS AND COMPUTER SCIENCE

STRONG RIS3 CAPACITY

1st computer in Latvia was built in this institute

4 different research laboratories

100+ employees and scientists

1960 is the foundation year of the Institute of Electronics

Institute of Wood Chemistry

DEVELOPMENT OF LOW-WASTE TECHNOLOGIES

240 publications indexed in Scopus

7 different research laboratories and centres

120 researchers and PhD in the team

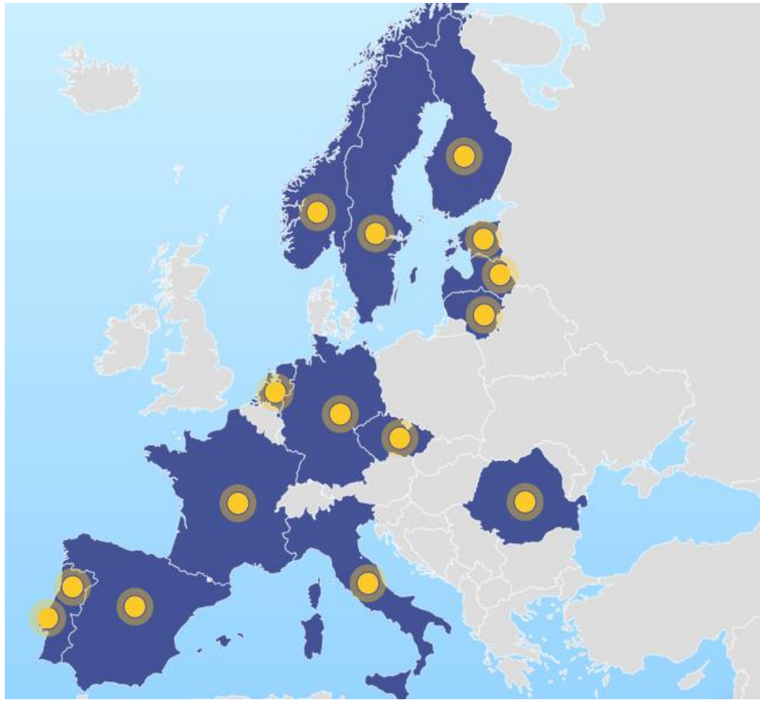
1946 is the foundation year of the Institute of Foresty

Consortiums

WE ARE OPEN FOR INTERNATIONAL COLLABORATIONS

EuroNanoLab: cleanrooms distributed infrastructure providing world-class nanofabrication services and expertise

Institute of Solid State Physics (ISSP), www.cfi.lu.lv, is the Latvian national research centre for micro/nano fabrication and characterization. A member of international EuroNanoLab

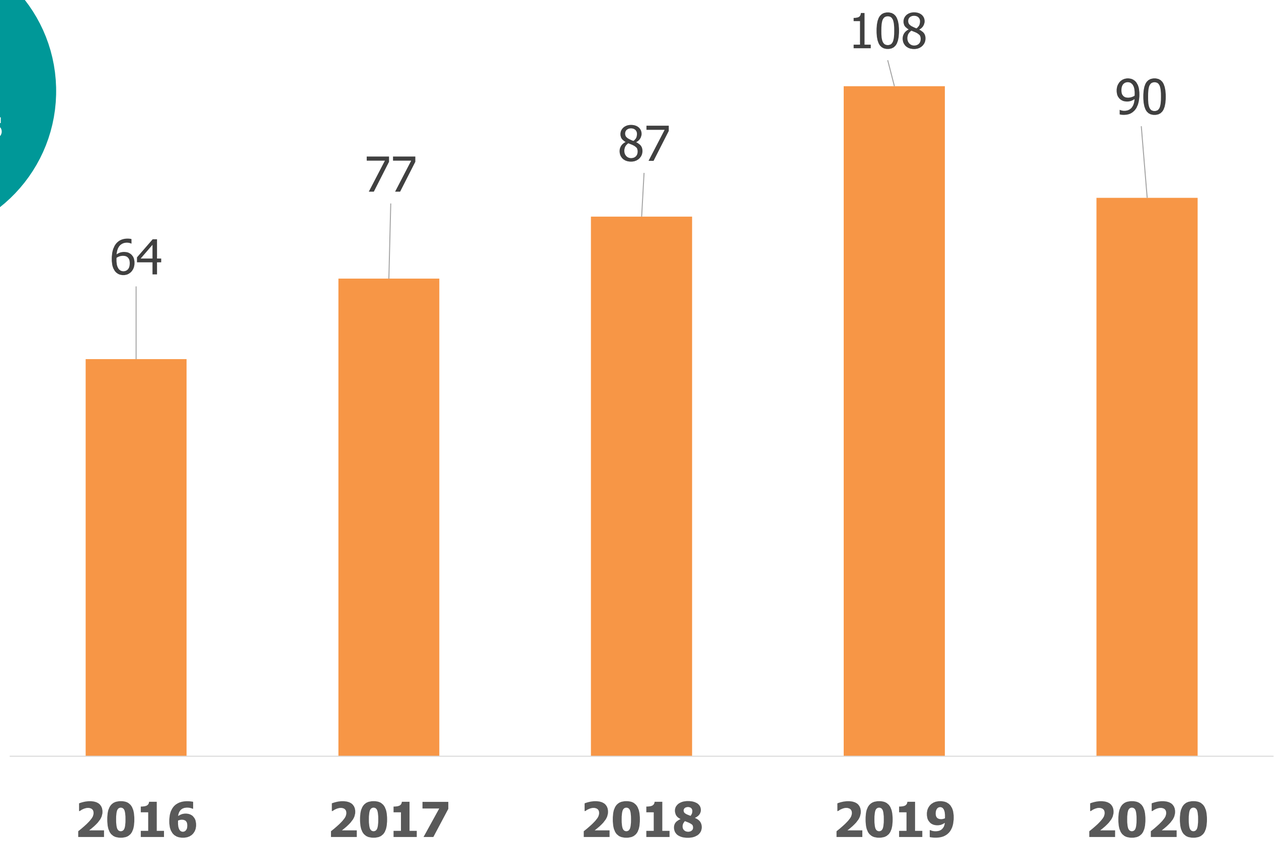


World class industry players

3. Industry statistics

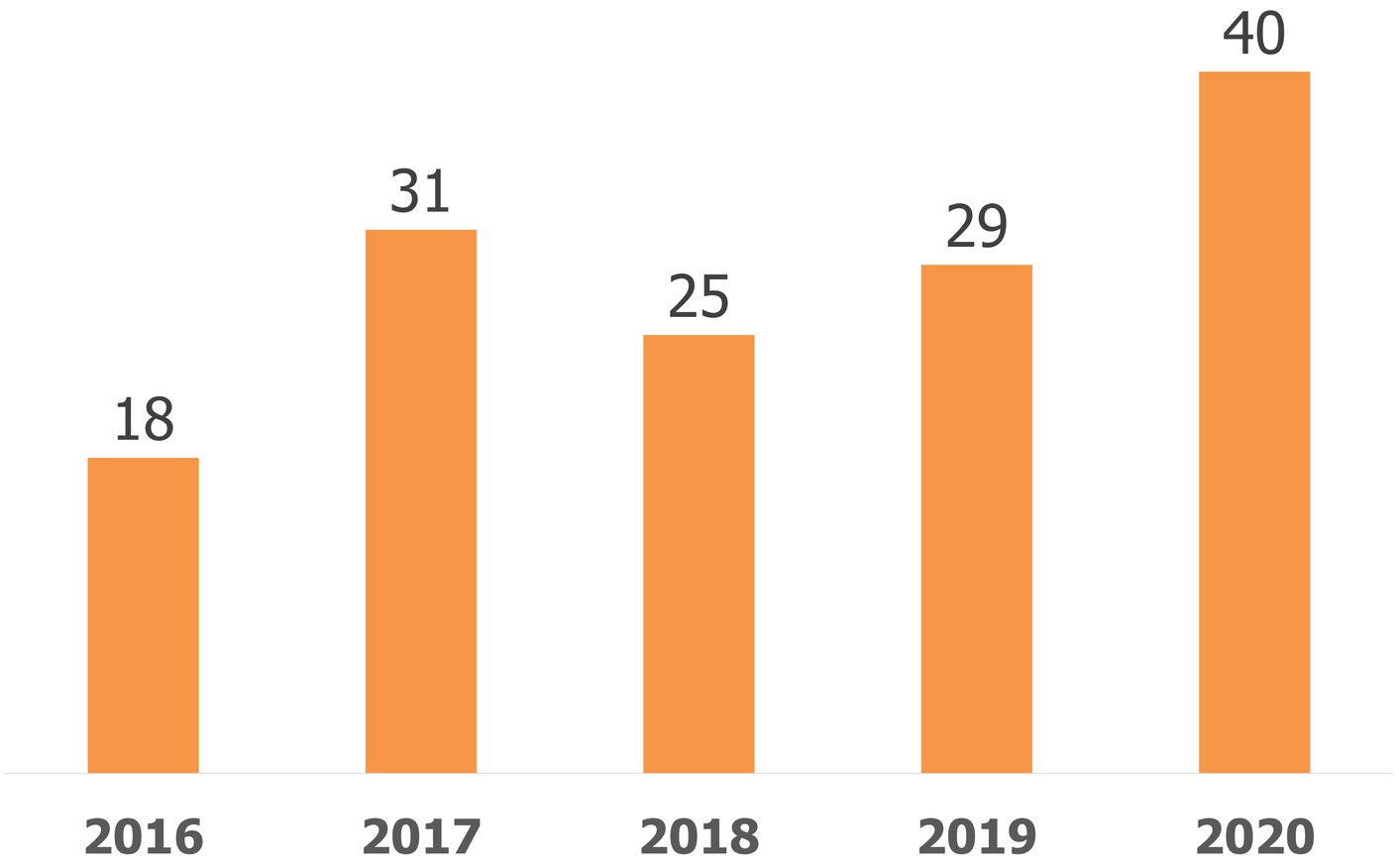
Export trends in MEUR

39
countries

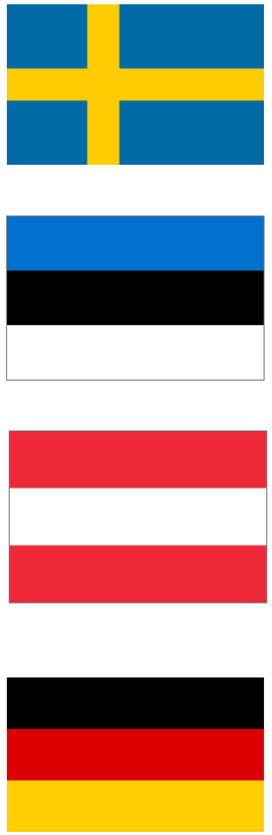


TOP export partners

Total investments in MEUR



TOP investors



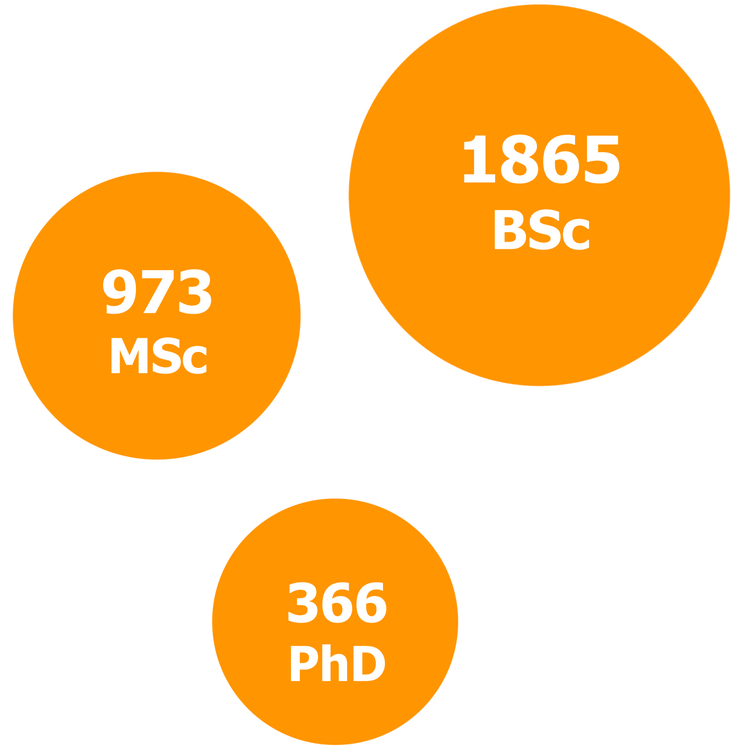
78
companies

1611
employees

Educational programs

LATVIA IS 7th IN THE WORLD IN THE NUMBER OF STUDENTS ENTERING STEM

- **RTU Faculty of Material Science and Applied Chemistry**
- **RTU Faculty of Mechanical Engineering, Transport and Aeronautics**
- **UL Faculty of Physics, Mathematics and Optometry**
- **Daugavpils University**
- **UL Faculty of Chemistry**
- **Vidzeme University of Applied Sciences**
- **UL Faculty of Computing**



4. Support instruments

Vouchers

Introduction voucher - aid **up to EUR 5 000 with 85-100% intensity** for: Feasibility study; Industrial research required for the development of new products or technology; Experimental development, including prototyping; Product industrial design development.

Classical voucher - aid **up to EUR 25 000 with 45-85% intensity** for: Feasibility study; Industrial research required for the development of new products or technology; Experimental development, including prototyping; Product industrial design development; Corroboration of industrial property rights; Certification and testing services for a new product or technology; Attraction of highly qualified employees.

Design voucher - aid **up to EUR 5 000 with 50- 85% intensity** for the designers services, for new product, process and developing a strategy for implementing innovations in the company.

Technology scouts

Technology scouts promote collaboration between researchers and entrepreneurs.

- For an **entrepreneur** who is planning to develop a new product or technology, technology scouts will help in finding the right people as they are familiar with research organizations, their staff and the services they provide.
- For **research organisa**tions technology scouts can help in identifying research projects with a potential for commercialisation and help in developing them.

Open Horizon Calls for 2021

- Disruptive solutions for integrated photonics, PICs and hybrid technologies (RIA), Advanced Photonic Integrated Circuits
- Advanced optical communication components (IA)
- New generation of advanced electronic and photonic 2D materials-based devices, systems and sensors (RIA)

Representation in Brussels

EGITA AIZSILNIECE-IBEMA: brussels@liaa.gov.lv

Latvian innovation and technology representation in Brussels will start from 1st April, 2021
LAT.TECH

Facilitate Innovation Excellence

Talk to EU structures

Facilitate collaborations

Inform about EC programms and incentives

Support for startups, business and specialists

Startup visa
including family members

25 000 EUR
innovation vouchers from LIAA

250 000 EUR
support for staff training

45%
co-financing for startup employees

1 day
to register company online

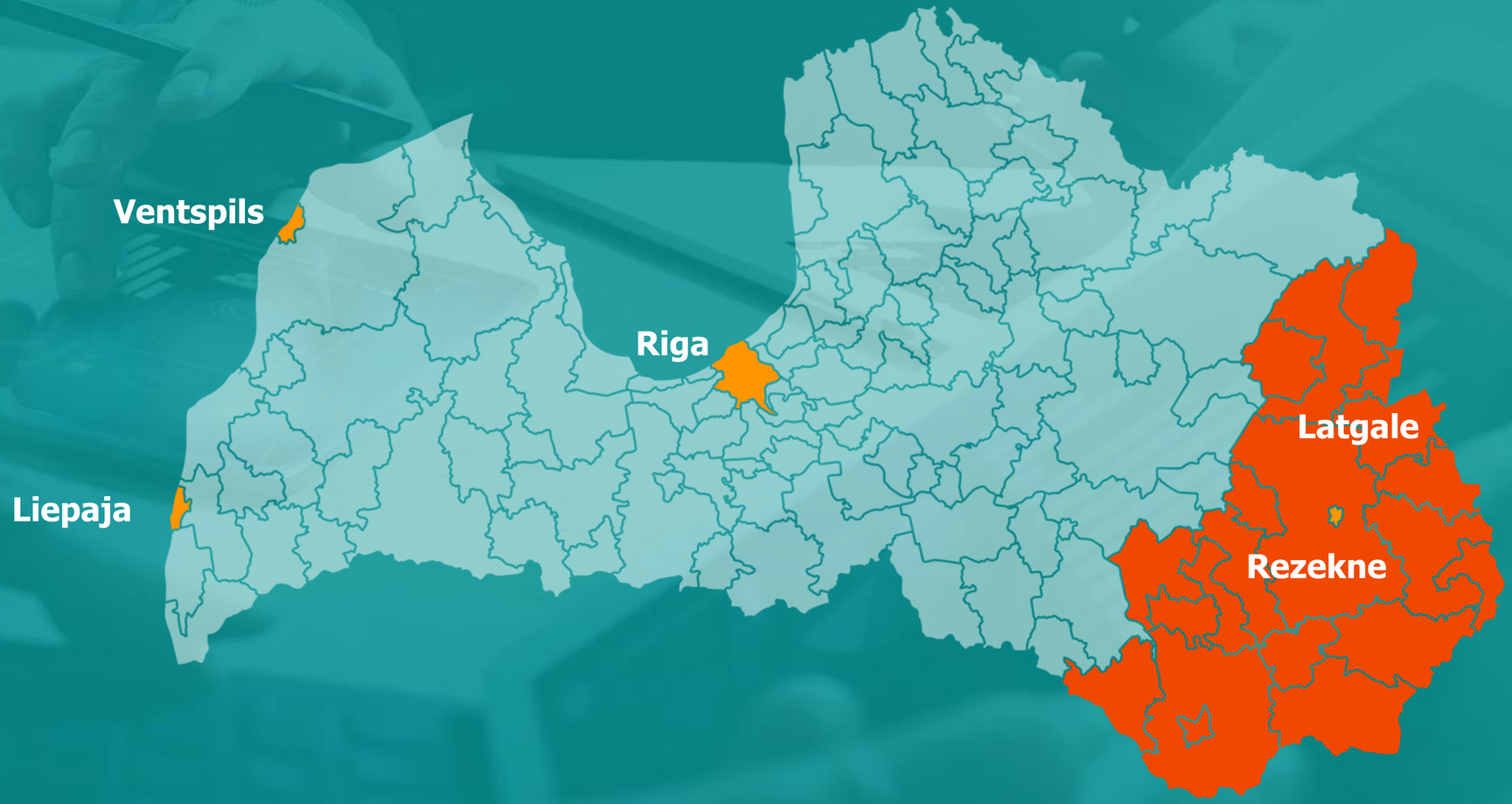
37 000
ICT specialist talent pool

Fast track
to relocate to Latvia

Flat Social Tax
340.90 EUR

Special economic zones

- Up to 80% rebate on real estate tax (1.5% in Latvia)
- 80% rebate on corporate income tax*
- 80% rebate on withholding tax for dividends, management fees and payments for the use of intellectual property for non-residents (rates for each type of withholding tax vary)
- Latgale and Liepāja SEZ - the costs of employees can be counted as investment in a 2-years time.



Tax system

0% on Corporate Income Tax

*20% for income <20 004 EUR/year, 23% for income 20 004-62800/year, 31% for income >62800 EUR/year

Green channel to enable new investment

Benefits - 2 times shorter timing in interaction with the State, including:

- Territorial planning
- Permits
- Foreign workforce attraction

Criteria (3 out of 4 for a positive evaluation):

5 mln investment in 3 years

50-75 workplaces

Exports over 3 million euros after 3 year

R&D/employee development - over 250 thousand euros

5. Overview of companies in the ecosystem

Light Guide Optics International

World's leading provider of fiber optic products
and optical fiber probes for laser
medicine, optical fibers for UV, VIS or IR range.

Develops, manufactures and supplies:

- Fibres, fibre bundles, cables and laser delivery systems
- Medical applications
- Industrial applications
- Optical fibres
- Capillary

www.lgoptics.com

LIGHTGUIDE

Ceramoptec

- Customized solutions in **fibre optic technology.**
- From individual fibre to ready-to-use cable assemblies.
- Precision-made solutions in-house, from preform manufacturing to finished cables and bundles.
- **www.ceramoptec.com**

Baltic Scientific Instruments

Development and fabrication of devices for precise **spectrometric radionuclide analysis** based on semiconductor and scintillation radiation detectors (radiation detectors, nuclear electronics, radiation measurements).

Products are applied in multiple industries:

- Nuclear power
- Environmental monitoring
- Geophysics
- Mining
- Medicine and healtchare

http://eventechsite.com/

EuroLCDs

- **World's fastest optical shutter technology (<0.1ms)**.
- Own research, industrialization & manufacturing facilities.
- Development of customized solutions.
- Bi-stable low energy consumption display
- Manufacturing technology of smart (switchable) glass products.

Lightspace Tehnologies

- **Global leaders in real-time multi-plane volumetric 3D image display** technologies.
- Produces Multi Focal Accommodating or IG series Augmented Reality Headset and Smart Glasses.
- Does not create Vergence Accommodation Conflict to human vision system.
- Second generation 3D volumetric displays.
- https://www.lightspace3d.com/

LightSpace Technologies

Sidrabe

- **More than 50 years of excellence** in developing unique thin film technologies.
- Partners of NASA.
- Customized vacuum coating systems.
- Roll-to-roll systems for different materials, large 3D object in-line and batch coating systems, powder coating systems, cluster laboratory systems, systems for solar & battery applications.
- **www.sidrabe.com**

Groglass

- One of the **world's leading developers and manufacturers of anti-reflective coatings.**
- Produces anti-reflective & other high-performance coatings on glass and acryl material and structure analysis
  (SEM-FIB, TEM) of thin coatings
- Partners - Rijksmuseum Amsterdam, Louvre Museum Paris, Forbidden City Beijing, State Hermitage Museum in Saint Petersburg and many others.
- **www.groglass.com**

Eventech

- A technology leader in developing **very high-precision digital signals processing devices** (extremely accurate measurements: 2-3 picoseconds).
- More than 50% market share in Satellite Laser Ranging (SLR).
- Laser Altimetry for Space Applications
- Clock Distribution & Synchro in Free Space (e.g. among Satellites)
- Quantum Communication
- http://eventechsite.com/

Test pulse generator with low jitter ETTG-100 (new)

HansaMatrix

- One of **the leading Nordic and Baltic electronic system developer** and manufactuer
- Integrated Manufacturing Services, Innovation and Engineering
- Industries: Industrial, transportation, telecom, renewable energy, medical and defense
- Over 15 years of engineering and manufacturing experience
- http://www.hansamatrix.com/

Thank you!

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