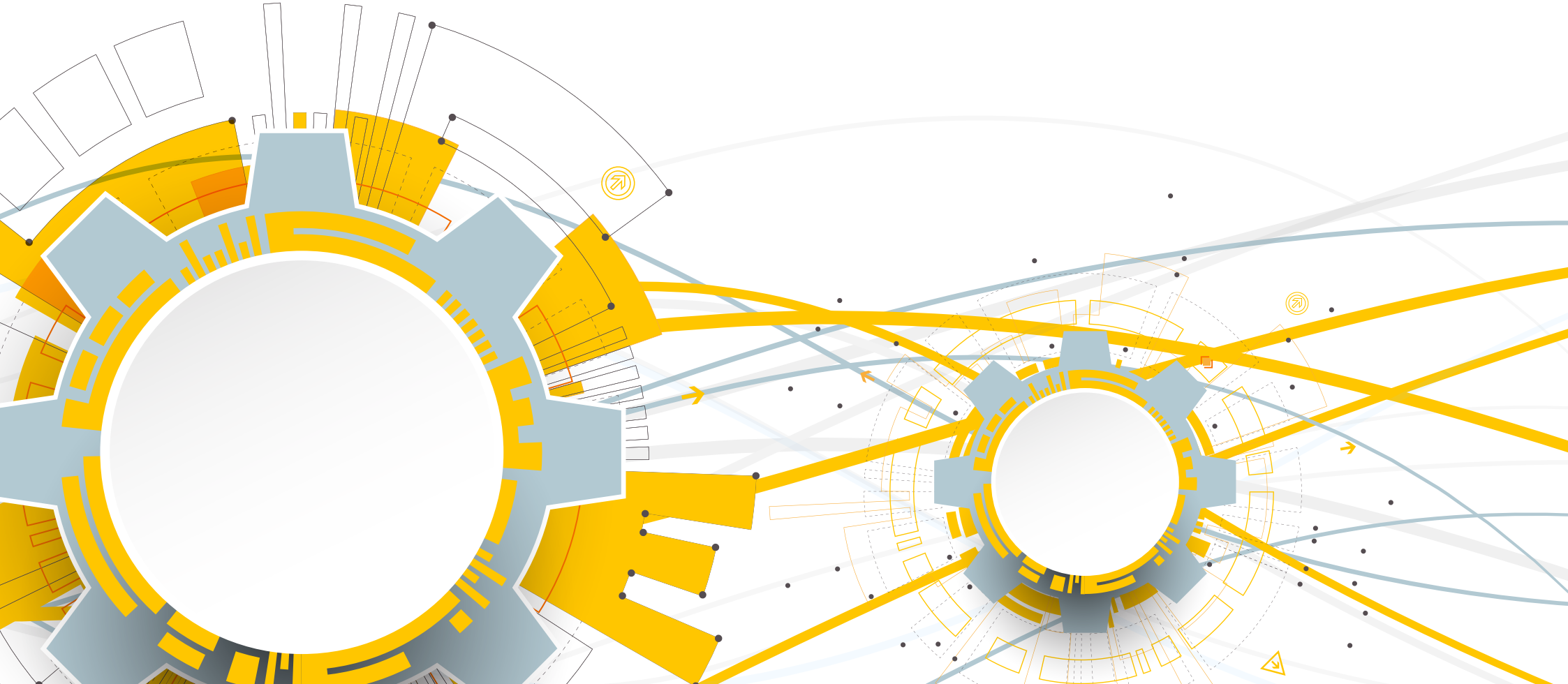
INNO INFRA SHARE

Interreg Europe

European Union
European Regional Development Fund

20 GOOD PRACTICES

ACCESSIBILITY OF RESEARCH AND INNOVATION INFRASTRUCTURES IN EUROPE



Introduction

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In charge of exchange of experience and learning process within INNO INFRA SHARE

Research and Innovation Infrastructures (RIIs) have the potential to serve as enablers of competitiveness and growth for local small and medium-sized enterprises (SMEs) and foreign users, especially in the areas of Key Enabling Technologies (KETs). To unleash this potential 8 partners from 8 European Union (EU) countries are jointly working to implement an Interreg Europe programme 2014-2020 project Sharing Strategies for European Research and Innovation Infrastructures – **INNO INFRA SHARE.**

The goal of the project is to improve the accessibility and the exploitation of local RII assets by SMEs. Research and Innovation Infrastructures are organizations that offer services to users to support the translation of technologies into actual business, useful products and solutions. Core to the organisation is the availability of state-of-the-art and innovation oriented technology infrastructure and experts that can provide support to business' innovation activity.

Project partners are working towards adding a market-driven dimension to the research and technological one, by networking and promoting collaboration opportunities at the regional and international level and by addressing national and regional RII relevant policy instruments.

INNO INFRA SHARE partnership is composed by 8 EU regions from Italy (represented by Aster), the Netherlands (Brainport Development), Belgium (Flanders Make), Germany (Chemnitz University of Technology), Latvia (Vidzeme Planning Region), Estonia (Tartu City Government), Czech Republic (Brno University of Technology) and Sweden (Region Skåne). All of them with common RIS3 smart specialization priorities.

Partners undertake a joint learning and collaboration process, involving regional and national stakeholders, that will contribute to the design and implementation of 8 Action Plans in their respective territories to improve policy instruments that will positively affect RIIs and improve their accessibility by SMEs.

The aimed result is that SMEs in partner regions will benefit from a better access to RIIs and an increased collaboration with research organizations to improve their innovation performance. Besides, a more precise and detailed picture of local RII ecosystems will be available for regional and national policymakers and SMEs. National and regional policies addressing RII will be improved thanks to the contributions provided by the Action Plans. Partners will gain an opportunity to benchmark their RII ecosystems with other EU hubs of RII excellence.

Existing RIIs are not fully being exploited, especially the access by SMEs is lagging behind and not sufficient interregional collaboration takes place. Joint efforts between industry, research organisations and public authorities and clear tools are needed to improve access to RIIs, bring results of RIIs to higher Technology Readiness Level (TRL) so to exploit their market potential.

INNO INFRA SHARE has produced this e-booklet to provide policy-makers, local companies, research and innovation actors and RII owners and a wider innovation community with insights into regional strategies and good practice examples on sharing research and innovation infrastructures.

In total 35 good practices were identified and reported in the project. All come from partner regions' experience. Out of this long list, 20 practices from all partner regions were selected to be included in the e-booklet, which might provide potential for learning and transfer of experience and inspire or guide other EU regions in designing and implementing strategies for improving the exploitation of RIIs for the benefit of the business sector, in addition to the research community. The good practices address solutions to improve RII governance, management, visibility, accessibility by companies, in particular SMEs and with reference to KETs. More specifically the selected practices contribute to the following crucial topics for RII sharing:

- Access to RII services by SMEs
- Access to RII by other local and international users
- Collaboration of RII with (industrial) partners
- Services provided to SMEs and business model for SMEs access
- Delivery mechanism
- Marketing activities
- Business-research collaboration
- Exploitation of interregional and international potential
- Public-private partnership
- Research-industry partnership
- RII performance monitoring and impact assessment
- Development Strategy
- Other: Important lesson regarding closure of a big company

We are confident that the good practices described in this e-booklet will illustrate the potential of RIIs to serve as enablers of competitiveness and growth. And therewith, that this e-booklet will become an inspiring tool for the development of strategies and improvement of policies for sharing research and innovation infrastructures in Europe for economic and social growth.

Content

No. 1

OPEN PLATFORM FOR ADVANCED TECHNOLOGICAL SERVICES IN THE MACHINE-TOOL MANUFACTURING SECTOR (MUSP)

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RIS3

- Mechatronics
- Transport

KETs

- Advanced materials
- Photonics
- Advanced manufacturing
- ICT and digitalization

Short description of the GP

The good practice is hinged on the provision of advanced technological services ranging from analysis of technological needs to development of innovative solutions for the production of machine tools (e.g. use of advanced materials techniques or energy-efficient processes) with TRL from 4 to 7. Services provided are addressed to members of the Consortium and to third parties. The business model is based on discounted access to service for members and full cost for non-members. Current frontier technology services include collaborative projects on metal foam, an ultra-light material with high potential in the manufacturing sector but with still high cost of production; and cryogenic processing, a low temperature metalworking process that stabilizes the material and cuts the consumption of cutting fluids.

MUSP embodies very well two key features of RII:

- It offers advanced development services **coupled** with use of advanced equipment;
- It offers an **open technology platform** (for members and non-members) for traditional manufacturing, thereby greatly increasing the opportunities of tech-based innovation.

Goal of MUSP:

- MUSP has the goal to support the business development of companies of the Mechanics sector through applied research and technological innovation.

MUSP can be considered a good practice because:

- The activity carried out is based on firms' needs;
- It is a consortium based on public and private actors (including big companies and SMEs) open to third parties access.

Evidence of achievement

Solutions like metal foam, a very clear innovative solution given by the light weight of this advanced material, for which MUSP has a distinctive national specialization; or the cryogenic metal processing that reduces the cost of metal cutting, are clear examples of innovative solutions reached by applied research at MUSP to tackle problems of efficiency and competitiveness in the machine tool sector.

An additional strength and success of MUSP is the capacity to work on different "project scales", according to firms' needs and size.

Lessons learned

Not always advanced solutions can be spread out to all consortium firms, given the costs required to sustain and implement such solutions, but the knowledge base of the consortium increases by each problem raised by firms.

Potential for learning & transfer:

- The **transferability potential** lies in the public-private partnership model, in the openness of the platform and the joint commitment of partners to manufacturing innovation.
- MUSP provides **an example of a local ecosystem** that enabled to invest in advanced infrastructures' endowment and to set up an open platform for advanced innovative R&D services.
- The MUSP lab includes 10 advanced testing equipment and the platform is based on a **viable business model** that guarantees a utilization rate of 75% and generates a turnover of close to 1 million euro per year.
- Since 2017 MUSP has also entered an agreement with InLAb, a business incubator physically close to MUSP headquarters, enabling to transfer MUSP technological competences to start-ups and spinoffs, thereby increasing the chances of survival of those young firms and adding new technological challenges to be tackled by MUSP platform.

Time scale: 2005 – ongoing

No. 2

SOFTECH ICT: CENTRE FOR MULTIMEDIA TECHNOLOGIES AND DEEP LEARNING

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RIS3

- Mechatronics
- Transport
- Health and well-being industry
- Cultural and creative industry

KETs

- Photonics, micro-nano electronics
- Advanced manufacturing
- ICT and digitalization

Short description of the GP

SOFTECH was founded in 2011 as a joint initiative of the Department of Engineering and the Department of Economics of the University of Modena and Reggio Emilia. The two research specializations bring an advanced platform of services that blends ICT and multimedia competences and business modelling. Softech's core ICT competences include: robotics, IoT, artificial intelligence, big data, simulation and modelling, software as service architecture, new software architecture.

SOFTECH services are open to third-party access and are characterized by a technology transfer model hinged both on ICT collaborative projects with firms (up to the prototyping phase) and on a "training academy" model in the era of deep learning for firms, covering multimedia technologies, visual computing, learning technologies and management and technological insight. The academy offers the unique competences of the Softech core team and of other multimedia data scientists and engineers.

SOFTECH main target sectors include: manufacturing industry, logistics, cultural and creative industries and the education sectors.

SOFTECH is also committed to develop digital strategies that enhance the role of human capital in the management of cultural and communication services, while increasing the uptake of smart digital solutions. In this regard it has been a partner of an ESF-funded program for digital humanities.

Evidence of achievement

- Offer of advanced competences in the field of artificial intelligence, providing a model that blends the transfer of ICT competences with advanced training opportunities and unique competences in business modelling;
- Very good interplay with industry: 40 firms are part of the Scientific Board of the Softech's Master Class and at least one third of these firms have entered collaborative projects with Softech over the recent years;
- Design of computer vision systems and deep learning solutions for top class firms like Ferrari and Panasonic and in general for a wide range of firms (from start-ups to large enterprises), from the automotive to the cultural sectors of several Italian regions.

Lessons learned

Softech model, while flexible enough to answer to the needs of small and large enterprises, provided they have some ICT competences internally, may encounter difficulties when a client does not have the capacity to develop the designed system.
This experience indicates that Softech's services must be addressed to Industrial partners possessing adequate ICT competences to make an effective service.

Potential for learning & transfer:

- The advanced training practices of Softech can be seen as examples of transfer of competences and knowledge to firms, via advanced learning methodologies;
- Thanks to its integrated capacity model, Softech supervises two key regional value chains (within the new regional program for High technology network in Emilia-Romagna) related to ICT in cultural and creative industries and to service innovation (cultural heritage and Industry 4.0).

Time scale: 2011 – ongoing

No. 3

ADVANCED MULTI-KETS LAB IN THE MANUFACTURING AND BIOMEDICAL SECTORS (MIST E-R LAB)

OWNER: MIST E-R LAB for micro and submicro enabling technologies

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RIS3

- Mechatronics and transport
- Health and wellbeing industry

KETs

- Advanced materials
- Nanotechnology
- Photonics, micro-nano electronics
- Industrial biotech
- Advanced manufacturing
- ICT

Short description of the GP

This good practice started in 2009 and is based on the access to multi-KETs competences **coupled** with the use of advanced equipment and facilities worth 20 million euros, employed to identify solutions with a TRL capacity from 4 to 7 (specifically to MIST E-R activities, but that extends from 1 to 9 with the entire partnership).

The services are open to members of the MIST E-R Public-Private Partnership (PPP) and to third parties. Current frontier technology services:

- in the **biomedical sector** include collaborative projects on microelectronic devices for portable dialysis machines, characterization of fiber filters for dialysis, magnetization of nanostructures;
- in the **manufacturing sector:** predictive diagnostics for automatic machinery.

Other KETs competences are currently implemented in collaborative projects ranging from photonics and advanced OLED lighting, advanced materials for cosmetics, ICT for environmental and cultural information systems. Solutions in the biomedical sector have led to an innovative model of a shared patent among the consortium, research labs and industry.

Goal of MIST E-R:

To develop cutting edge technologies in the fields of innovative materials and micro and nano sensors for the industry.

MIST E-R can be considered a good practice because it is a unique model of multi-kets public-private partnership.

Evidence of achievement

MIST E-R:

- reduces the timing from research to industrial solutions with a dedicated tech transfer staff and various solutions for intellectual property;
- operates mainly through a collaborative platform model;
- adapts to all kind of industrial demands, from SMEs to large enterprises.

MIST E-R output can be measured by:

- the number of ongoing project involving regional firms and other RTOs (currently: 10);
- the number of partners involved (at least 5 per project);
- the wide range of target sectors; the medium to high turnover for an RTO with a staff of 10.

Lessons learned

MIST E-R model does not target a specific enterprise size, but is a flexible platform of solutions for firms of all dimensions. The actual limit of this model lies in the market capacity of firms to sustain the costs of R&D beyond an initial phase of exploration. The lesson learnt is therefore to adapt to firms' requirements and their capacity to scale the solutions into industrial innovation and help them enter into EU, national and regional funding schemes.

Potential for learning & transfer:

- **Public-Private Partnership:** An interesting example of Public-Private Partnership that operates on criteria of openness, with a wide range of technological competences and access to facilities and equipment (including equipment for electronic characterization and nanofabrication), especially in the manufacturing and health sectors.
- **Viable business model:** The practice is based on a viable business model that guarantees a utilization rate of the equipment up to 75% and generates a turnover of over 1 million euro per year.
- **Multi-KETS platform:** The transferability potential lies in the public-private partnership model, in the openness of the platform and in the provision of a multi-KETs platform model.

Time scale: 2009 – ongoing

No. 4

HOLST CENTRE: A CROSS-BORDER OPEN INNOVATION R&D CENTRE

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RIS3

- High Tech Systems and Materials
- Life sciences and health

KETs

- Photonics, micro-nano electronics
- Advanced manufacturing
- ICT and digitalization

Short description of the GP

Holst Centre was initiated as response to Philips' request to create a Public-Private Partnership on the new High Tech Campus Eindhoven. Dutch TNO and Flemish imec accepted the challenge and, with financial backing from the Ministry of Economic Affairs, in 2005 opened an open innovation R&D centre with shared research programmes that bring together industry and academia. The goal of open innovation is to share ideas, efforts, infrastructure, costs and risks and to reduce time to market for new product generations.

Holst Centre develops generic technologies for wireless autonomous sensors and flexible electronics. The centre is supported by local, regional and national governments and is named after Gilles Holst, a Dutch pioneer in Research and Development, first director of Philips Research. It has over 200 employees from some 28 nations and around 50 industrial partners. The pool of industrial partners is a mixture of regional, national and international companies, varying from start-ups, SMEs and large internationals. By working with some of the most innovative companies in the world, e.g. Samsung, Sony, Philips, Panasonic, BASF and DuPont, Holst Centre has grown to a state-of-the-art R&D Centre which re-uses its R&D portfolio to help local companies to enter global value chains and help SMEs to get access to state-of-the-art facilities and know-how.

Holst Centre has grown into an excellent example of cross-border open innovation and public-private collaboration. Company R&D costs are growing faster than company revenues and individual companies can often not afford disruptive innovations. The public-private partnership is therefore essential to maintain a leading ecosystem in the high-tech industry in the region.

Evidence of achievement

- **Eco-system building:** the open innovation research programs bring together partners from across value chains to create critical mass and share risks of innovation. It connects local players, international partners, and universities. Evidence: over 50 companies actively doing research.
- **Accelerate innovation** and going to market to support competitiveness. Evidence: 3 spin off companies in the last three years and a large pilot manufacturing infrastructure, enabling cost sharing of new technology developments and scale up to higher TRLs.

Lessons learned:

To be able to afford disruptive innovations, **public support is essential.** It is thanks to the efforts of all parties involved (Municipality of Eindhoven and Province of North Brabant, TNO, NWO, Ministry of Economic Affairs, Agriculture and Innovation and imec) that the basic funding is secured. This makes it possible to achieve important technological innovations, instrumental in addressing major societal challenges. However, the boundary conditions for public funding are volatile and there is no automatic extension mechanism. This leads to uncertainty about the continuity and a portfolio that is shorter term oriented.

Potential for learning & transfer:

- **Attracting industrial partners:** Holst Centre's programs and business model have proven very successful in attracting industrial partners to specific research roadmaps. A genuine partnership among businesses and academic organizations has been created, managing the sharing of intellectual property, ensuring value for all and measuring performance so that projects that make progress receive the support they need. At Holst Centre, partners complement their own exclusive R&D with shared R&D, leveraging each other's talents and know how.
- **SMEs:** Dedicated research trajectories are undertaken in collaboration with SMEs, mostly to speed up the technology transfer and industrial uptake of results obtained in shared research. For these collaborations, dedicated partnerships and IP agreements are determined. Besides, Holst Centre collaborates with local development agencies, develops more product concepts with higher TRL, and creates a new entity that offers small series manufacturing of devices.
- **Branding:** Holst Centre is leveraging on the brands of its founders: imec and TNO. Additionally, the existing eco-system around Holst Centre has now become an important reason in itself for new industrial partners to join.

Time scale: 2005 – ongoing

No. 5

AUTOMOTIVE CAMPUS: (OPEN) INNOVATION IN THE AUTOMOTIVE INDUSTRY

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NL

RIS3

• High Tech Systems and Materials

KETs

• Advanced Materials
• Micronano electronics
• Advanced Manufacturing
• ICT and digitization

Short description of the GP

In 2007, based on a strong collaboration between business, education and government, an ambitious vision was prepared for the development of the Automotive Campus (AC). The campus would be a crystallisation point: an inspiring business location with top international education, quality facilities and a strong business proposition. In a Public Private Partnership, with two public and two private investors, the realisation of the campus started in 2009.

Nowadays Automotive Campus in Helmond offers a one-stop-shop for automotive companies and institutes. It has a large concentration of R&D, engineering, education and world-class test-facilities. A lot of effort is put in active community building and stimulating (open) innovation. There is interaction between industry, education, and government. The AC´s goal is to function as a magnet to attract first class automotive companies, and the business they attract, to the Brainport region. There are around 40 organizations located and around 600 people are employed at the campus. A continuous education programme has been established and the number of students is growing rapidly.

Shared facilities & Facility sharing at AC: More than restaurants, meeting rooms and individual working spaces that are available to share among organizations at AC, there are shared research centres, test facilities and other centres.
This is considered a good practice because of the strong vision of open innovation and facility sharing in the automotive industry, even though the automotive industry is still a quite traditional sector where open innovation proves to be difficult. Besides, it is a good example of joining forces between public and private partners at the establishment of the campus.

Evidence of achievement

• Offers a top location with a broad mix of automotive suppliers, R&D companies, development departments, test institutes and service providers.
• A place where cross-fertilization takes place between the ICT, logistics, energy, design and infrastructure sectors.
• Parties work together and experience the added value of establishing on the campus, including through the close connections with existing, quality education (on all levels) and research.
• A pleasant working environment for the residents and a positive exposure to clients.
• Excellent lab and testing facilities.

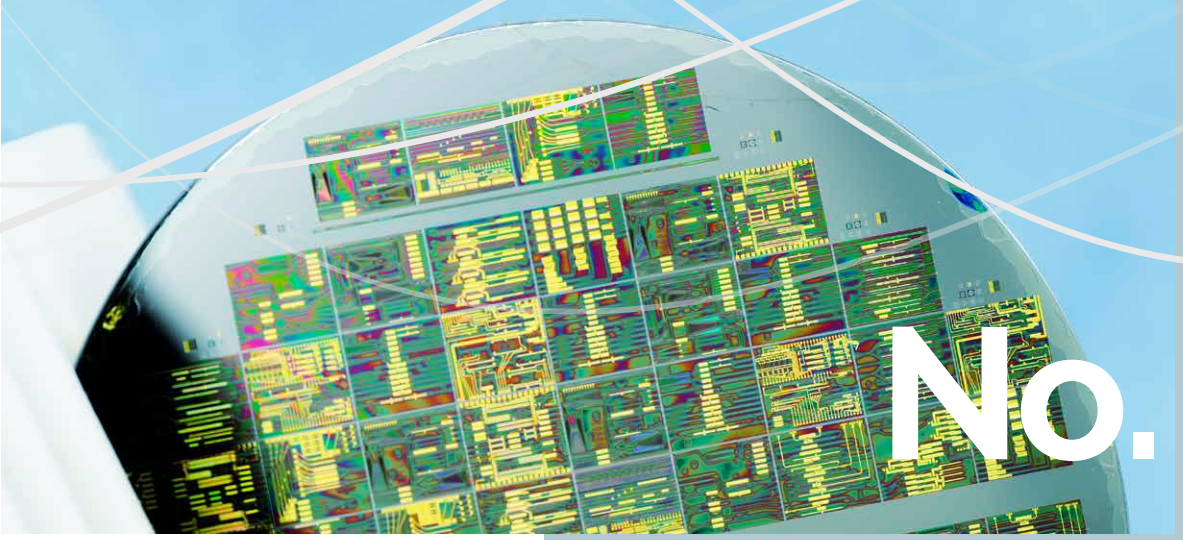
Lessons learned

When sharing research and innovation infrastructures:
• define the right exploitation model, covering the exploitation costs on a longer term, with sufficient attention for market demand.
• create and formalize commitment regarding the exploitation among stakeholders, including private companies.
• create mechanisms to guarantee access to the facilities by SMEs and find the right balance between large companies and SMEs. Organizations in charge of the exploitation, tend to do business with larger companies, because that offers more financial security and interesting research projects.

Potential for learning & transfer:

• **Open innovation:** the AC has a concept of open innovation and sharing of Research and Innovation. Even though the automotive industry is still a quite traditional sector where open innovation proves to be difficult, the AC is a positive example of joining forces on a commercial level as well as in public/private partnership.
• **Triple helix business model:** one key for success. On the campus industry, governmental organisations and education and knowledge institutes work closely together on societal mobility challenges like safety and security, congestion and environmental issues.
• **Shared Facilities and Facility Sharing:** sharing of RIIs at the AC. The facilities provide an impulse for the Dutch automotive sector and the Brainport region. The Automotive Facilities Brainport (AFB) is a joint effort of the Ministry of Economic Affairs, leading automotive companies, cluster organization (AutomotiveNL) as well as educational institutes (Fontys, TU/e, M.A.C.). This shows an interesting collaboration model to make high tech infrastructure available for SMEs and students.

Time scale: 2005 – ongoing



No. 6

PHOTONDELTA - INTEGRATED PHOTONICS ECOSYSTEM

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NL

RIS3

- High Tech Systems and Materials
- Life sciences and health

KETs

- Photonics, micro-nano electronics
- Advanced manufacturing
- ICT and digitalization

Short description of the GP

PhotonDelta is one of Europe's leading innovation hubs, amplifying existing initiatives and kick-starting new ones regarding the Photonics business.

The European Photonics market has an exponential growth potential, which is now worth around €70 billion, representing 18% of the global market, being dominated by SMEs. Public funding is needed to bridge the gap between working prototypes leaving the research lab and the point at which the chips are ready to be manufactured in quantity. PhotonDelta is taking the lead in mobilizing funding to support research and innovation in SMEs. At the same time, actively linking best-in-class research and development to best business practice is necessary because a fragmented approach is never going to scale this technology. Disruptive innovation comes when young companies get access to the knowledge already gained by high-tech enterprises and applied research institutes.

3 pillars exist under PhotonDelta:

- The Institute of Photonic Integration, building on 40 years of optics research at Eindhoven University of Technology – in cooperation with other nanotechnology centres like Mesa+ at the University of Twente and Saxion University of Applied Sciences.
- The Cooperative: a consortium of scale-ups, manufacturers and investors. The goal is to build win-win situations for members, including early access to Research IP.
- The Photonic Integration Technology Centre (PITC), which is currently being established, branching out on Europe-wide work done in circuits and components by the JePPIX consortium. PITC is a custom-built state of the art shared facility geared towards new product production, prototyping and manufacturing. The PITC provides the equipment and expertise to prepare a technological innovation in the area of photonic integration for industrial use and integration. Domains on processing, packaging, prototyping, building block development, and testing are currently being considered.

Evidence of achievement

- **Eco-system building:** in a short period of time, with limited funding, a strong ecosystem has been created, integrating the key stakeholders along the value chain.
- **Opinion leadership:** PhotonDelta managed to put the technology integrated photonics on the regional, national and even international agenda. Starting as a regional cluster, PhotonDelta rapidly changed into a national representative for integrated photonics and the author of the National agenda for Integrated Photonics Industry. On a European scale, PhotonDelta even became leader of the European Photonics Alliance, an EU consortium for Industrial Modernization/Smart Specialisation. Besides, PhotonDelta is the initiator of World Technology Mapping Forum (worldwide roadmap for Integrated Photonics).

Lessons learned

Integrated Photonics is a disruptive technology. Only through strong collaboration along the whole value chain and with large investments, including substantial public funding, the economic potential can be exploited and Europe can keep up with international competition. Besides, strong industrial leadership is needed and a strong belief in the potential of the technology. Without a strong lobby from industry, it is hard to convince public authorities to invest.

Potential for learning & transfer:

- **Overarching vision:** The importance of enhancing a strong vision, surpassing the level of individual industries or regional level, and rather think in terms of supply chains throughout Europe.
- **Triple helix innovation hub:** How to build an innovation hub, getting stakeholders on board:
  - Triple helix
  - Along the entire supply chain, including start-ups, suppliers etc.
  - From different regions and countries.
- **Focused funding:** The success of PhotonDelta to build a European platform for photonics, is evidence of the importance of defining more focus in public funding and also to substantially increase public funding for KETs in order to overcome the valley of death.
- **Aligned policy instruments**: This example shows how important it is to better align different policy instruments in Europe with each other to develop specialized supply chains throughout Europe, rather than being scattered among isolated initiatives.

Time scale: 2016 – ongoing

No. 7

VIDZEME UNIVERSITY OF APPLIED SCIENCES KNOWLEDGE AND TECHNOLOGY CENTRE (VIA KTC)

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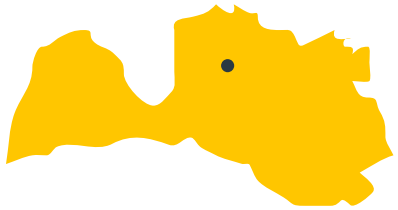
LV



RIS3

• ICT

KETs

• ICT and digitalization

Short description of the GP

Vidzeme University of Applied Sciences Knowledge and Technology Centre (KTC) offers multiple interconnected services for SMEs:

Virtual and augmented reality (AR) laboratory allows the companies to use the equipment for:

• Industrial training. Scenarios of assembly, disassembly, maintenance and management;

• Urban planning and architecture. AR solutions for outdoor and indoor;

• Interactive study tools and equipment for medicine and anatomy;

• Visualization solutions for logistics, the integration of RFID technologies and real-time object traceability;

• Entertaining educational environments (gamification, edutainment, serious gaming, game based learning) for libraries, schools and pre-schools;

• Marketing and product demonstration. Virtual 3D objects in real space (exhibitions, street, etc.).

Mechatronics laboratory provides possibility to use equipment necessary for development of controlled electromechanical systems, electrical and software prototyping, that can be especially valuable for new emerging start-up companies for creating new products.

Mobile network laboratory offers companies investigate issues in wireline and wireless networks and find solutions for to different technical problems, that can benefit companies for testing its network systems.

ViA Smart Labs: I-LAB (innovation laboratory), S-LAB (Student Practice Laboratory), B-LAB (Business Trial laboratory) - service based approach for usage of RII for companies together with multidisciplinary student teams and business ideas testing in labs.

The core objective is the provision of accessibility of ViA infrastructure via cooperation services to partners for carrying out training, applied research or testing. This approach allows companies to use the available RII and encourages companies to attract students to the co-creation and testing process via the Smart Labs system.

Usage of laboratories in synergy with the ViA Smart labs process allows companies to utilize RII resources and involve students in the process.

Evidence of achievement

• Usage of available RII by stakeholders from several fields has proved itself a viable model. High intensity augmented, and virtual reality hackathon was organized, during which new products, services and start-up ideas were produced. Participants had the opportunity to work with respected and experienced moderators/mentors from US and other mentors from many different areas of business.

• I-LAB program has facilitated 5 interdisciplinary student teams together with partners from industry and public sector that worked on development and testing of partners' tasks in their premises and in a lab environment.

• ViA Smart Lab student teams have found work and internship opportunities within the industry and developed own project and product ideas.

• Multidisciplinary mandatory study course has been developed integrating Project based learning approach using similar concept as in I-LAB.

Lessons learned

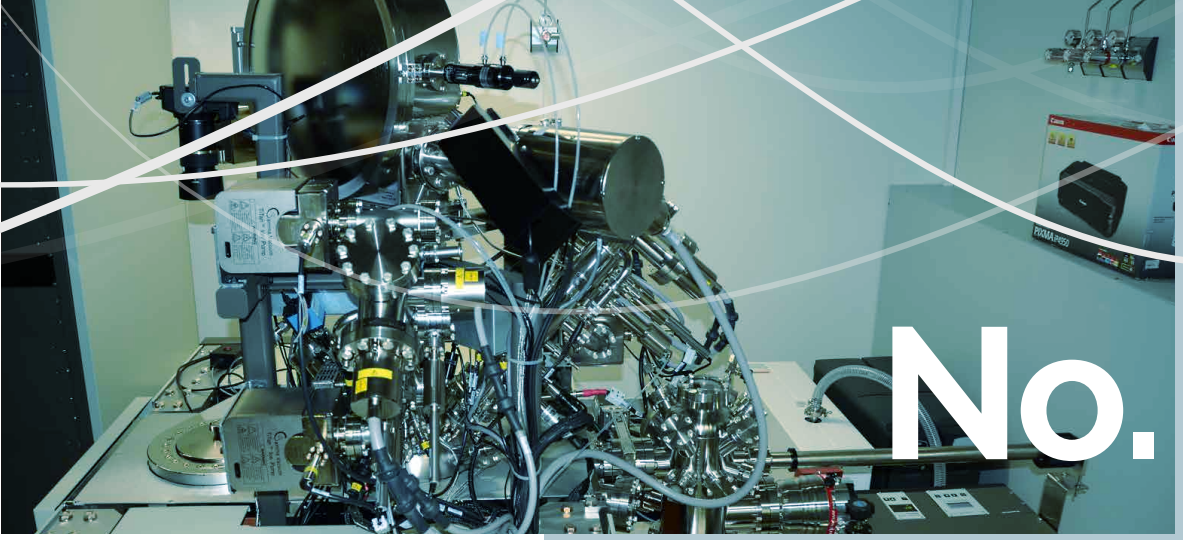
For student participants ViA Smart labs provide steep learning process and it must be taken in account, that some motivational measures should be implemented to encourage participation follow through all the project activates. Companies and other partners involved in such activities look forward to results, as resources are invested, so management of stakeholders' expectations and mechanisms of motivation are necessary.

Potential for learning & transfer:

Specific technologies and use cases: This practice may be interesting from the technical point of view – available RII focused on virtual and augmented reality and the use cases of this RII for industry needs.

Smart Labs approach: The involvement of multi-disciplinary student teams for problem solving for companies, using university RIIs is a win-win model for SMEs and university, since companies can attract students for solving their problems as a very cost-efficient solution, and students receive an opportunity to work on a real industry defined needs, can develop practical skills and acquire contacts from potential future employers.

Time scale: 2015 – ongoing



No. 8

CENTRE OF NANOMATERIALS TECHNOLOGIES AND RESEARCH (NAMUR+)

OWNER: University of Tartu, Tallinn University of Technology, National Institute of Chemical Physics and Biophysics

GP LOCATION: W. Ostwaldi tn 1, 50411, Tartu, Estonia

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EE

RIS3

• More efficient value-added from the use of resources

KETs

• Photonics, micro-nano electronics
• Advanced manufacturing

Short description of the GP

NAMUR+ is a multidisciplinary, decentralized material research infrastructure in Estonia with the primary goals of:
1. providing a world-level research infrastructure for material characterization at nano and sub-nanometre scale;
2. making Estonia visible as a potential source of high level knowledge in the field of nanoscale material science;
3. increasing knowledge and providing an educational platform for nanoscale material science in Estonia. The infrastructure is jointly owned by two Estonian universities: the University of Tartu and Tallinn University of Technology.

NAMUR+ goal is to develop a cutting-edge infrastructure for the fabrication, research and application of nanomaterials, and to joint different parts of infrastructure owned by project partners to a common attraction centre of nanomaterials and nanosafety.

The aim of the project is to establish infrastructure and excellence centre for research and development and safety assessment of nanomaterials (an object of Estonian Research Infrastructures Roadmap) by bringing together projects partners' high-technology equipment. The partners of NAMUR+ are the University of Tartu, Tallinn University of Technology and National Institute of Chemical Physics and Biophysics (Laboratory of Environmental Toxicology, the leading partner for safety assessment of nanomaterials).

Evidence of achievement

The described practice has secured definite quantitative and qualitative outputs and will receive/has received 5 million EUR from the national government to update/purchase new equipment. The RII has already acquired nearly 25 customers and together with the university researchers, the equipment utilization is in the range of 50-75%.

Lessons learned

The main challenge is to create a strong backbone for long-term implementation of NAMUR+ activities, as it requires substantial financial and human resources. At the same time these activities present new opportunities for the university and companies involved, so more integrated cooperation can further strengthen these and similar programs.

Potential for learning & transfer:

• **Openness:** The greatest potential for learning is the interdisciplinarity and openness for research, technology and industry in the field of electronics, energetics, ICT, biomedicine etc.
• **Personnel:** The infrastructure facility is managed by well trained and educated engineers who are there to help the customers/companies in their needs.

Time scale: 2014 – ongoing

No. 9

NATIONAL CENTRE FOR TRANSLATIONAL AND CLINICAL RESEARCH (CTM)

OWNER:	University of Tartu (coordinator), Estonian University of Life Sciences, Tartu University Hospital
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EE

RIS3

• More efficient value-added from the use of resources

KETs

• Biotech

Short description of the GP

The National Centre for Translational and Clinical Research (CTM) is a national research infrastructure formed by the University of Tartu, Estonian University of Life Sciences and Tartu University Hospital in 2010. From the same moment, the Centre was added to the list of Estonian Research Infrastructures Roadmap. As a result of the first period, the Laboratory Animal Centre has been established. The goal of the second period (2017-2020) is to develop a clinical research unit. The general aim of CTM is to improve the quality and innovation in the health research in Estonia. The Centre brings together researchers working in different areas in health research, and combines competencies from diverse areas of medical research. CTM is a partner for the state, businesses and society to provide expertise in the field of health research. The vision of CTM is to implement Estonian research, development and innovation (R&D&I) strategy for health research. CTM is a national centre for medical innovation. The mission of CTM is to ensure a high level medical research and efficient medical innovation in Estonia. In order to accomplish its mission, the Centre develops and maintains high-level internationally recognized infrastructure for the medical research. CTM aims to be a professional partner to various stakeholders (companies, government agencies, health care institutions, other organizations) and advise them in the field of health research. The Centre includes high-technology core facilities. For example, DNA sequencing with Next-Generation Sequencers for research and clinical purposes. The human genome can be sequenced in about a week. The centre also includes storage facilities for biological samples which are kept in a temperature of minus 150 degrees. One of the most remarkable technology the centre has is 9.4 Tesla magnetic resonance spectroscope (MRI or MRS), which is made specifically for studies on small animals. This technology helps researchers to look at the inside of organs and can be used for in vivo imaging which helps to reduce the number of experimental animals used for biomedical research.

Evidence of achievement

The described practice has secured definite quantitative and qualitative outputs and will receive/has received 5 million EUR from the national government to update/purchase new equipment. The RII is unique on the EU level, the equipment utilization is in the range of 50-75% and the partnership with the Tartu University Hospital allows faster knowledge and technology transfer.

Lessons learned:

One challenge is presented by creating a strong backbone for long-term implementation of SIME activities, as it requires financial and human resource investment. At the same these activities present new opportunities to the universities, the hospital and companies involved, so more integrated cooperation can further strengthen these and similar programs.

Potential for learning & transfer:

• **Attracting industrial partners:** The centre's programs have proven very successful in attracting industrial partners to specific research roadmaps. The research is focused on key-domains which are relevant to (and defined by) the target group of national and international companies.

• **Funding scheme:** The Estonian Government has created a "stable" funding base and a potential to grow with Estonian Research Infrastructures Roadmap.

• **Constant upgrading:** State of the art technologies that help companies from target validation to early clinical trials

Time scale: 2010 – ongoing

No. 10

SIRRIS

OWNER: Sirris
GP LOCATION: Diepenbeek, Leuven, Kortrijk, Ghent in Flanders and Liege in Wallonië, Belgium

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BE

RIS3

• Specialized manufacturing solutions and new ICT platforms

KETs

• Advanced manufacturing solutions and advanced materials

Short description of the GP

Sirris is the collective centre for the technological industry. It is a research institute that helps companies to innovate and bring new products and processes to the market. Sirris is a non-profit organisation that helps companies by focussing on their markets and technologies to facilitate the attainment of their objectives. Sirris offers individual support at every step along the way, from the drawing board stage right through to prototype development and pilot tests for finished products. The companies retain ownership of the results of any cooperation, such as innovative applications or solutions while the generated knowledge remains at available Sirris for other companies to exploit.

Sirris has 140 experts available for innovation projects with companies. 75% of the companies involved in Sirris projects are SMEs. Sirris has a high-tech testing and innovation infrastructure in different sites across Flanders/Belgium. In Flanders Leuven, Diepenbeek and Kortrijk are the most important sites.

Sirris was initiated by Agoria (the Federation for the Technological Industry) in 1949. The mission of Sirris is to increase the competitiveness of the technological industry by innovation. All technological companies in Belgium with more than 10 employees are member of Sirris and pay a membership fee.

Together with Agoria (the Federation for the Technological Industry) Sirris has started the Made Different initiative that helps companies to transform themselves into factories of the future.

The European model of 7 transformations is used to assess companies. Sirris supports the companies with the transformation plan.

Evidence of achievement

• Sirris has a broad installed base of innovation infrastructure across 8 different sites in Flanders/Belgium (Diepenbeek, Kortrijk, Liege, Brussels, Leuven, Ghent, Charleroi and Antwerp) which is easily accessible to companies.
• On top of the installed base of infrastructure Sirris also offers innovation support to companies. It actively helps companies to innovate and bring new products and processes to the market. Sirris is operating in the higher TRL-levels.
• Every year Sirris helps on 3,000 occasions in 1,500 industrial companies, 75% of which are SMEs.
• The industrial portfolio contains nearly 5,000 customers and Sirris has more than 2,500 member companies.
• Sirris has over 140 in-house experts spread over 8 different sites in Belgium.

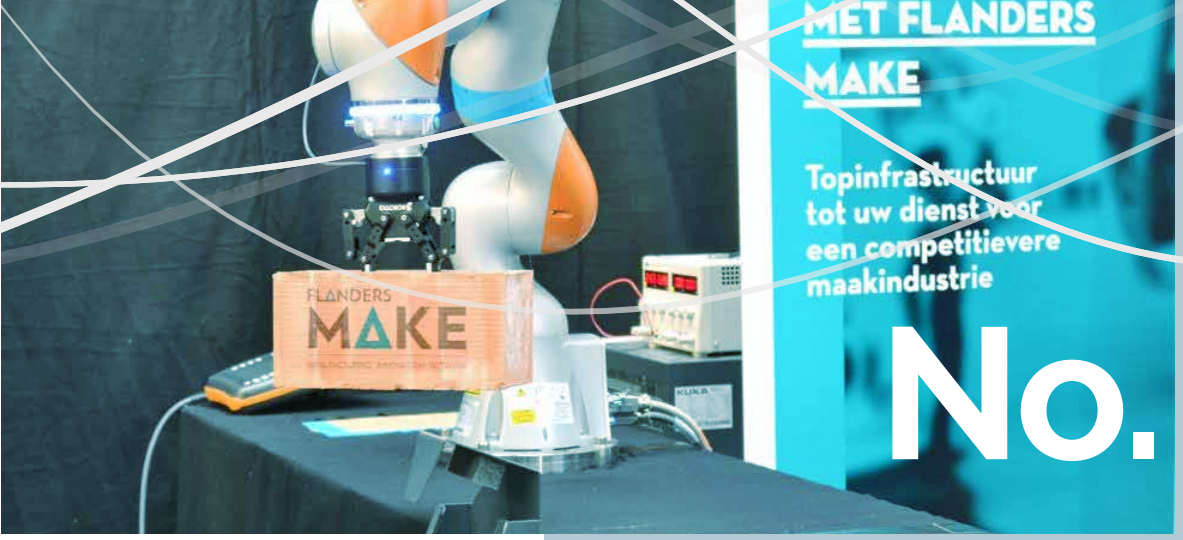
Lessons learned:

Some of the lessons learned in the innovation labs are:
• Continuous investments in the latest technologies to attract companies
• Combination of expertise and technology
• Openness of the initiative towards
- industrial users
- technology providers
• allowing new innovative players to test their technologies
• do not restrict to one technology provider
- other stakeholders, like educational institutes.

Potential for learning & transfer:

• **Strong cooperation with the industry:** Sirris succeeds in helping many different companies from small to big. In 2015 it has executed 1972 different industrial projects and 216 collective research projects. 1500 different companies were served of which 75% were SMEs. This SME-focus is a critical success factor. It has an open structure and companies have easy access to the knowledge, the technology and the infrastructure.
• **Close to market technological solutions:** The technological solutions offered are close to the market and can be used with little effort from the companies.
• **Strong international network:** The wide-ranging network of Sirris comprises universities, research centres, companies, associations and other institutions from all over Belgium and Europe. Staff, knowledge and methodology is exchanged with all these partners, and in joint research projects Sirris looks for answers to a number of technological challenges. In this way, Sirris aims to stay one step ahead of technological advances.

Time scale: 1949 – ongoing



No. 11

FLANDERS MAKE: STRATEGIC RESEARCH CENTRE FOR THE MANUFACTURING INDUSTRY

OWNER: Flanders Make vzw
GP LOCATION: Lommel, Leuven, Ghent, Brussels Flanders, Belgium
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BE

RIS3

- Advanced manufacturing solutions

KETs

- Smart manufacturing
- Monitoring and control
- Additive manufacturing
- High performance production

Short description of the GP

Flanders Make is the strategic research centre for the manufacturing industry. Flanders Make has establishments in Lommel and Leuven and works together in a structural way with research departments of the 5 Flemish universities.

The purpose is to realise a top-level research network and infrastructure in Flanders that delivers full support to the innovation projects of manufacturing companies. In this way, Flanders Make wants to contribute to the development of new products and processes that help to realise the vehicles, machines and factories of the future.

Flanders Make has been initiated by the Flemish Government in cooperation with the Flemish manufacturing industry. The goal is to support the industry with technology innovation to create economic added value. Flanders Make supports both SMEs and large manufacturing companies with industry-driven, pre-competitive and excellent research. In this regard, product, process and knowledge development are inextricably linked to one another.

The mission of Flanders Make is to strengthen the long-term international competitiveness of the Flemish manufacturing industry by carrying out excellent, industry-driven, pre-competitive research in the domains of Mechatronics, Product development methods and Advanced manufacturing technologies.

Evidence of achievement

Since its existence in 2014 Flanders Make has reached all the required performance indicators as imposed by the Flemish Government:

- The number of member-companies has grown from 60 in 2014 to over 100 in 2017.
- Together with the industry 8 innovation roadmaps and strategic research topics have been defined and established.
- In 2016 393 companies were directly involved in cooperation with Flanders Make
  - 44 different companies participated in research projects (50% SMEs).
- The scientific impact of Flanders Make:
  - 218 scientific publications in top-magazines in 2016
  - 390 publications in journals per year.

Lessons learned:

Flanders Make started as the merger between two existing organizations. The integration took time and effort from all the participating organisations.
New relationships with the companies in the industrial network had to be set up.
Moreover, the cooperation with the 5 Flemish Universities had to be established in a framework agreement as a basis for structural collaboration with the relevant research groups of these universities.

The foundations had to be constructed that facilitate the cooperation with the different stakeholders in this very complex (triple helix) network.

A solid base of research infrastructure has proven to be indispensable for the validation of research results and for the support of the manufacturing industry.

Potential for learning & transfer:

Other regions could benefit from the RII in a few aspects:

- The initiative was started by the government in cooperation with the industry and was the response to an assessment of the regional industrial/manufacturing situation (2013/2014).
- The companies are the voice of Flanders Make. Research is done in an open innovation environment with and for companies.
- The research is best in class and can meet international benchmarks. The majority of researchers has a PhD.
- The research is focused on key-domains which are relevant to (and defined by) the target group of companies.
- The Flemish Government has created a "stable" funding base and a potential to grow beyond sub-critical.
- There is a "climate" to create instruments for funding which cover the full extent of the innovation-chain (basic research funding up to "scale-up-valorization"-funding).

Time scale: 2014 – ongoing

No. 12

FOOD PILOT

OWNER: Flanders Food and ILVO
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BE

RIS3

• Specialized Agro Food

KETs

• Industrial biotechnology

Short description of the GP

The Food Pilot is the pilot plant for innovation in the food sector. Different types of technology are offered to the industry, such as:

• Analytics and recipes
• Processing
• Packaging
• Research on durability

The Food Pilot is an application and analysis centre where the food industry can optimize their products and processes. In 2009, the Food Pilot project got started as a project of ILVO and Flanders' FOOD, with the support of the Flemish Agency for Innovation and Entrepreneurship. The purpose of the Food Pilot was to establish an application and analysis centre to serve all the sectors of the food industry. At present the Food Pilot is a busy point of contact for the food industry, with yearly >10.000 food analyses, 300 pilot tests and many advises for hundreds of companies.

The Food Pilot provides tailored support - either from idea to product, or for one specific step in the processing trajectory. Processing can be simulated using our semi-industrial scale production lines; product quality can be analyzed in the laboratory. Semi-industrial processing lines are available for dairy, meat, vegetable products, including pasteurization, sterilization, drying, extrusion, grinding, mixing, ... As such, the agri-food industry is supported in innovation in processes and products. This includes the development and improvement of recipes or production processes, the scaling up to (semi-)industrial production scale, and the exploration of the newest technologies.

Suppliers can also demonstrate their newest technology or perform tests for their clients in the Food Pilot's demonstration room, equipped with all necessary utilities.

Evidence of achievement

• It has a broad installed base of innovation infrastructure which is state of the art in food related technology. The infrastructure is capable of developing and testing the different process steps needed for the development and manufacturing of food products. The equipment is in many cases portable between the production halls of the Food Pilot, so that different combinations of processes can be created.
• The facility has an extreme open character, is well suited for SMEs (and also large companies) and developments are done in very close collaboration with the industrial partners. Companies can really "experience" the developments on a real-life basis. 30% of the customers are SMEs.

The Food Pilot has the ambition to be a showcase for the Industry 4.0 related technologies in the food industry.

Lessons learned:

• Translation of research into service
• Connection with companies: 1-by-1 intake consultations to start a trajectory
• Performing trials together with the client, hands-on
• Continuously striving to a high quality of work: in expertise, infrastructure and guidance.

Potential for learning & transfer:

The greatest potential for learning is the open character of the Food Pilot. Also, the fact that the product and process development is suitable for both large companies as well as start-ups and SMEs.
Also, the infrastructure facility is managed by well trained and educated engineers which are there to help the customers/-companies in their needs.
The plant is highly customer focussed.
The portable and mobile equipment enables the establishment of tailor-made production lines according to the costumer's needs.
The Food Pilot plant is a unique facility that enables the (confidential or collaborative) development of food related products and processes. A connection is made between the industry and the research landscape where the Food Pilot collaborates with different research institutes in Flanders and abroad.

Time scale: 2009– ongoing

No. 13

IMEC: RESEARCH AND INNOVATION HUB IN NANO-ELECTRONICS AND DIGITAL TECHNOLOGIES

OWNER: imec
GP LOCATION: Leuven, Ghent, Antwerp, Brussels in Flanders, Belgium. More offices in The Netherlands, USA, China, India, Taiwan and Japan.

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BE

RIS3

• New ICT Platforms and Specialized Manufacturing Solutions

KETs

• Micro-nano electronics
• Nanotechnology
• Photonics
• Advanced Manufacturing Technologies

Short description of the GP

Imec is the world-leading research and innovation hub in nanoelectronics and digital technologies. It combines its widely acclaimed leadership in microchip technology with profound software and ICT expertise to create groundbreaking innovation in application domains such as healthcare, smart cities and mobility, logistics and manufacturing, and energy.

The combination of the most advanced microchip technologies and state-of-the-art software expertise is what makes imec unique. The evolution in microchip technology towards more powerful and smaller chips allows imec to make every object intelligent and to bring tons of data at our fingertips. By combining and translating the collected data from billions of connected sensors into meaningful information, imec helps its partners create truly smart applications that enhance our life – all while putting digital privacy and security center stage.

Worldwide – and especially in Flanders, Belgium – imec employs close to 3,500 highly skilled researchers from over 70 nationalities who deliver industry relevant and life enhancing solutions. Imec thereby makes use of world-class infrastructure, including 12,000 square meters of cleanroom capacity containing the most advanced collection of microchip processing tools in the world, and state-of-the-art (bio, wireless, imaging, ...) labs.

Collaborations are vital to what imec does. That is why it works together with key industrial partners and academia across a variety of industries such as healthcare, smart cities and mobility, logistics and manufacturing, and energy. Imec stimulates entrepreneurship and kick-start technology start-ups.

Through imec's technology leadership, its ecosystem of partners, the excellence of its researchers and its high-tech infrastructure, imec makes a difference in shaping the future.

Imec offers both R&D solutions to create new technologies as well as innovation services applicable to both products and services. Projects can be big or small, stand-alone or have multiple partners.

Evidence of achievement

• Total income (2016): € 496 millions (of which 82% contract research)
• 62 spin-offs since 1986
• 1.032 peer-reviewed papers and conference presentations (2016)
• 50 awards received, including many best paper awards at important scientific conferences (2016)
• 169 filed patents, position at the top for Belgian applicants of European patents in 2016 and strengthening its portfolio of R&D offerings.

Lessons learned:

iMec uses a 5-step model to create cross-sectorial cooperation. The model consists of:
• Awareness
• Platform creation
• Evaluation and validation
• Implementation and leverage

Infrastructure and living labs are key for the successful roll-out of technological solutions.

Creating a platform where different organizations within the innovation ecosystem cooperate is extremely valuable for innovation boosting.

Potential for learning & transfer:

• **Strong industry engagement:** Over the years imec has succeeded in building a world class research and innovation centre with top 3500 researchers and state of the art research infrastructure. Although the revenue streams are diverse (Govt, industry, EU), bilateral contract research is 82% of the income which indicates the big impact on the industry, not only in Flanders but also abroad.
• **International relevance:** Imec is internationally oriented and driven by global excellence. Imec has built a close relationship with the top international companies in the sector. Imec's infrastructure can be seen as world class. 12,000 square meters of cleanroom capacity containing the most advanced collection of microchip processing tools in the world, and state-of-the-art (bio, wireless, imaging, ...) labs.
• **Infrastructure for specific industry needs:** Imec has a variety of dedicated test labs where academic researchers and industry partners can put new technologies and concepts to the test. The test labs are focussed on advanced metrology solutions or specific material tests and analysis, or do you need to test networking and connectivity solutions. Imec has also smart spaces where new technologies and services can be tested and validated in real-life conditions. Each of imec's smart spaces focuses on a specific application field – from smart homes and offices to smart event venues.

Time scale: 2014 – ongoing

No. 14

PRONANO: NANOPRODUCTS OF THE FUTURE

OWNER: RISE, Research Institutes of Sweden (RTO) in lead, together with Region Skåne, Lund University and interested SMEs.

GP LOCATION: Lund, Skåne, Sweden

CONTACT DETAILS: www.pronano.se

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POSITION, E-MAIL: Managing Director
Stefan.adolfsson@ri.se

RIS3

• Smart Materials

KETs

• Nanotechnology

Short description of the GP

A pilot production facility under construction. A RII as strategic core in developing an ecosystem for commercializing nanotechnology. The need for ProNano was identified by Lund University and some SMEs. Together with a big partnership, including the region and the national RTO (RISE), ProNano is now starting up.

ProNano is a pilot production facility for SMEs in the nanotech field, a fully equipped facility with industrial standards for SMEs being able to show reproducibility of their applications and thus attract market interest.

It is a good practice of how a RII can be the core of an ecosystem development, and a good story on how academia, SMEs, regional public stakeholders and national partners come together with a strategic development plan with RII in its core.

Evidence of achievement

• **Highlighted the need of Business-Research cooperation:** The formation of Pronano has highlighted the need of building a network of European cleanroom facilities to meet the needs from the industry, especially SMEs.

Lessons learned:

Improvement has taken place in the policy instrument of the RIS3 implementation. The RIS3 work has showed to be in need of a multi-layer involvement, from top level decisions to a huge effort in process facilitation across the different organisations, and also a combination of funding opportunities (not the ERDF).

Potential for learning & transfer:

• **Shared Inspiration:** Learning and inspiration on how to foster development within an area closely linked to academy, such as nanotechnology.

• **Involving Business Life:** Inspiration on how SME-needs for RII is turned into a strategic roadmap lead by public organisations.

Time scale: 2018 – ongoing

No. 15

OPEN LAB SKÅNE

OWNER:	Malmö University, Lund University, and Lund Life Science Incubator
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RIS3

• Smart Materials and Personal Health (life science, materials science, food and chemistry)

KETs

• Photonics
• Micro-nano electronics
• Advanced manufacturing

Short description of the GP

Open Lab Skåne is a new, more effective and active, collaborative model which acts as a meeting place that promotes cross-sectoral collaboration between academia and industry offering new opportunities for innovation areas at the intersections of life science, materials science, food and chemistry. The aim is to promote development of new products and services by opening laboratories and providing equipment and expertise to strengthen knowledge exchange and minimize the gap between academia and industry. Actors in the region work together to create sustainable innovation infrastructure that generates result and growth opportunities. In addition, it will contribute to increased business opportunities to relinquish the growth opportunities offered by the new research facilities by being an entry to ESS and MAX IV. Taken together, Open Lab Skåne is a unique opportunity for SMEs to gain access to lab space, office space, state-of-the-art instrumentation, support from qualified research engineers, and key competences.

Open Lab Skåne was established April 1st, 2017 by Biofilms Research Centre for Biointerfaces at Malmö University, Department of Food Technology, Engineering and Nutrition at Lund University and SmiLe Life Science Incubator In Lund, which makes out the initiative's three nodes that provide the resources needed. Experiences gathered may be useful to other universities and research parks in the country. By sharing experiences and lessons, Open Lab Skåne can make it easier for other national institutions to open their labs, tools and skills for external users. One can eventually see opportunities for creating a national Open Lab with national nodes.

Evidence of achievement

• **Involvement of Industry:** Open Lab Skåne is an interesting practice for other regions to learn from because it has already been **important for companies' R&D activities and is a great opportunity for start-ups.** This will result in increased growth of SMEs, contribute to strengthening the regional attractiveness and creating a unique and strong regional network of resources in life science, materials science and chemistry, as well as maintain skills in the region and contribute to more efficient use of regional expensive investments.

Lessons learned:

Skåne has, like many regions in Europe, strong research infrastructure. Open Lab Skåne strengthens the mutual understanding of and collaboration between industry and academia. This means that the needs of companies, support and skills can be met in a new way, and increase the coordination and cooperation between regional actors that is needed for a good and relevant research and innovation infrastructure in the region.

Potential for learning & transfer:

• **Collaboration Academia/Industry and Policy Instruments:** Open Lab Skåne is an important initiative that contributes to the fulfilment of Skåne's regional development strategy i.e., Skåne will strengthen the innovation power, development conditions and prerequisites for starting and running companies in life science and chemistry.

• **Access to laboratories for SMEs:** Positive effects for input nodes is that the exchange of knowledge and utilization of research results increases in acting as a collaborative arena for academia and industry, which can help create an entrepreneurial environment/culture and lead to more market-friendly innovations, knowledge-intensive SMEs that have better competitiveness, attractive education at the higher education institutions and new networks that provide partners with better online surveillance and strategic contacts. Positive effects for users is that it contributes to new strategic partnerships between companies and academia and strengthens companies' innovation and competitiveness which will generate new innovations and products and more companies being able to move forward with projects in the long run.

Time scale: 2017 – ongoing

MATERIALS BUSINESS CENTER

No. 16

MATERIALS BUSINESS CENTER

OWNER:	Innovation Skåne
GP LOCATION:	Lund, Skåne, Sweden
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RIS3

• Smart Materials (materials technology, nano materials)

KETs

• Photonics
• Micro-nano electronics
• Advanced manufacturing
• ICT and digitalization

Short description of the GP

Materials Business Center connects industry, entrepreneurs, research institutes and universities with materials related operations. The vision is to be a global epicentre for new products and businesses based on materials technology and innovation in Southern Sweden. The platform invites companies to take part in the innovative environment around the cutting-edge research that will be conducted in connection with the materials research strongholds in the region. It also gives access to a network of established industries, academy and research institutions such as MAX IV, Nano Lund, DESY, ESS, etc.

Materials Business Center is a collaboration between Invest in Skåne, Lund University, Region Skåne, Science Village Scandinavia and operated by Innovation Skåne. The project is partially financed by the EU (ERDF). Materials Business Center was initiated to capitalise on the growth opportunities brought about by the huge investments in materials science such as in large scale RII like MAX IV and later ESS.

Evidence of achievement

Materials Business Center has a non-formalized network of:
• 40 Industry companies
• 25 Start-ups (which they are or have been providing advice to)
• 15 universities and institutes
During the first two years they have arranged workshops on specific materials-related topics with approx. 400 unique participants (in total) from industry, academia and start-ups.

Lessons learned:

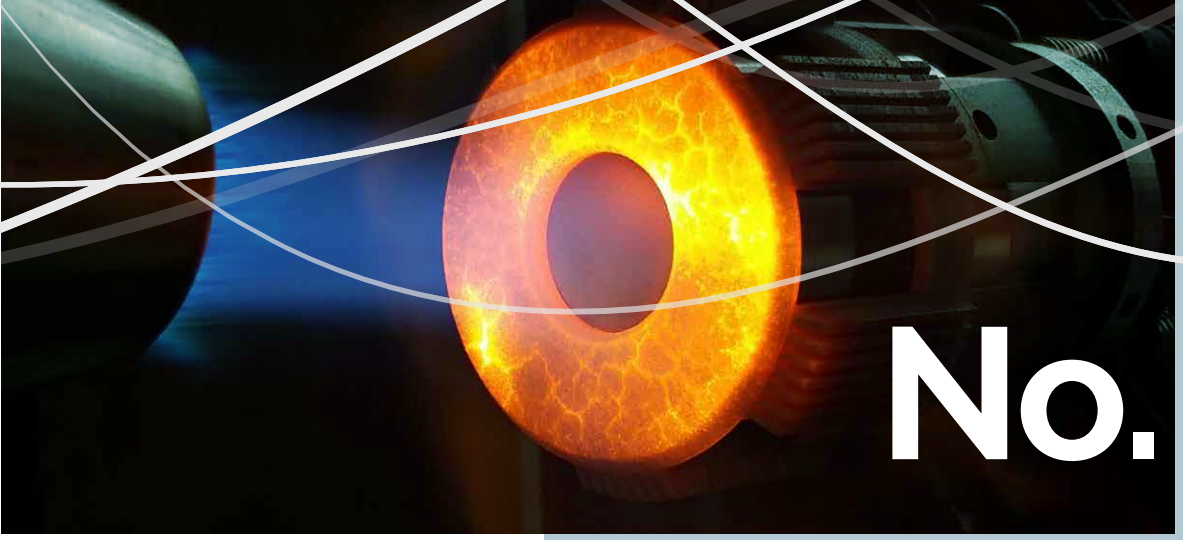
Materials Business Center can be considered a good practice as they have succeeded in taking industry needs as the starting point and feed this to start-ups and academia. The key to success is the network, understanding the area and what organizations can be relevant for whom. In other words, they do a very careful match-making.

Potential for learning & transfer:

Match-making facilitator: The founders realised that the local community of innovative companies needed a service that would allow them to take full advantage of the cutting-edge research carried out in the region exemplified by the establishment of MAX IV and ESS. By creating the right conditions for new business in the form of entrepreneurial companies, Materials Business Center mediates solutions to established industry and addresses the global challenges facing us all within energy, environment, food security and health, where new materials are a key part of the solution.

Materials Business Center triggers growth through stimulation of new businesses as well as innovations through the matching of industrial challenges and needs with entrepreneurial drive and creativity. This allows them to take full advantage of the cutting-edge research carried out in the region exemplified by the establishment of MAX IV and ESS.

Time scale: – ongoing



No. 17

ADVANCED COATINGS LABS

OWNER: Central European Institute of Technology,
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CZ

RIS3

- Advanced manufacturing and mechanical engineering
- Technologies for aerospace

KETs

- Advanced materials
- Advanced manufacturing

Short description of the GP

Advanced Coatings Labs are public/private – industry/research infrastructures developed, established and equipped to:
- apply result of high-end scientific excellence into practice
- and to provide top quality services, expertise and instrumentation for industry and contractual research.

Main areas of interest are:
- application of advanced coatings for mechanical engineering, automotive, space and aerospace, energy and biotech
- analytical expertise in the field of material characterization and metallography.

Evidence of achievement

Since its establishment in 2014, Advanced Coatings Labs have built extensive expertise, which consists of the following:
- Lab on Spray Technologies for plasma processing at the S.A.M. Metallizing Company
- Heat treatment and Chemistry Lab at the Central European Institute of Technology (CEITEC) at the Brno University of Technology
- Materials Science Lab at the CEITEC Nano infrastructures
- Materials Science Lab at the Faculty of mechanical Engineering at the Brno University of Technology

Lessons learned:

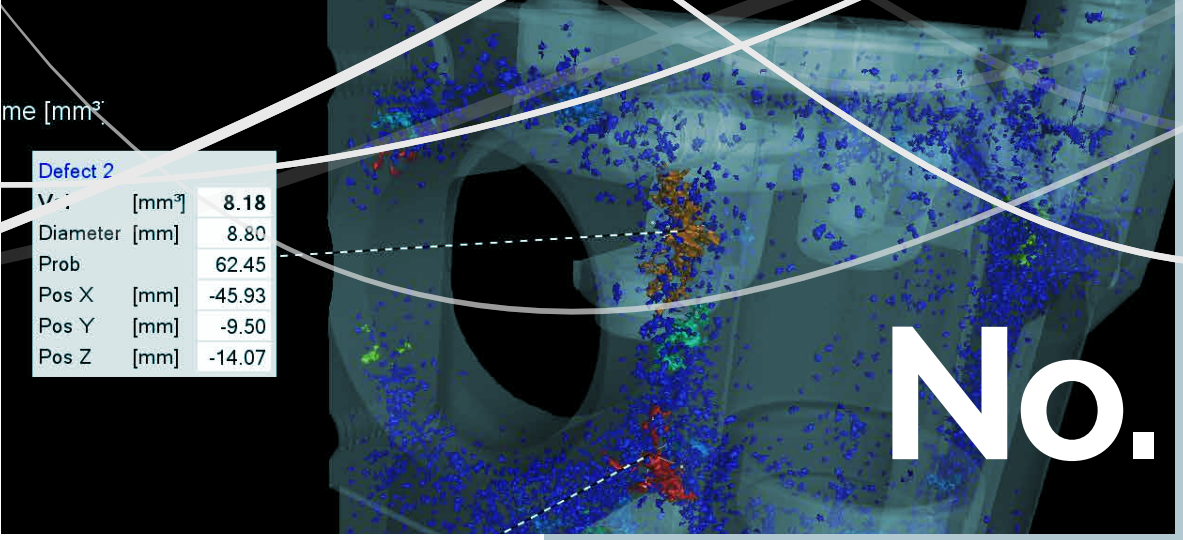
Direct engagement is necessary for cooperation between SMEs and research and innovation infrastructures. Without regular feedback from the operations, there is literally no chance for RIIs to achieve any closer cooperation with SMEs. Essential confidence must be built between SMEs and RIIs to enhance a higher level of cooperation and make stable, strategic and sustainable relationship.

Potential for learning & transfer:

Direct in situ engagement of RIIs:
- organic connection between the science, application and production
- scientists working together with engineers and technicians
- online immediate feedback from the industry
- day by day business and in situ engagement
- local RIIs cooperate with local SMEs to produce global products and develop global applications
- direct cooperation is good basis for extended collaboration.

Sharing public/private equipment:
- shared public/private infrastructures established to achieve applicable results with real impact
- public/private element balanced in terms of state aid.

Time scale: 2014 – ongoing



No. 18

CENTRAL EUROPEAN INSTITUTE OF TECHNOLOGY, BRNO UNIVERSITY OF TECHNOLOGY - PLASTICS CLUSTER PARTNERSHIP

OWNER: Central European Institute of Technology, Brno University of Technology, Plastics Cluster

GP LOCATION: Brno, Czech Republic

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CZ

RIS3

- Advanced manufacturing and mechanical engineering
- Precise instrumentation
- Rubber production
- Plastics industry

KETs

- Advanced materials
- Advanced manufacturing
- Micro/nano-electronics
- Nanotechnologies

Short description of the GP

Central European Institute of Technology, Brno University of Technology (CEITEC BUT) and Plastics Cluster (Plastr) entered into the partnership in 2014 to support an interregionality and interdisciplinarity of their activities and to support the connections between regional research and innovation infrastructures (RIIs) and SMEs.

CEITEC BUT is an independent scientific institute at the Brno University of Technology, which was established within the framework of the CEITEC - Central European Institute of Technology.

Plastr is a Zlín regional cluster with 4 priority sectors: education and human resources development and innovation, cooperation, common purchase and sale of services and promotion. Plastr represents important institutions of the Zlín region: Tomáš Bata University in Zlín, the Zlín Region, Association for the Development of the Zlín Region and regional Technological Innovation Centre.

Evidence of achievement

The partnership addresses interregional and intersegment cooperation, when stakeholders from different regions meet each other and cooperate on one side and stakeholders from different application fields share the benefits from mutual cooperation on the other side (automotive, plastics, furniture, rubber, polymer and plastics industry, coating, waste management are targeted and meet each other).

Multilateral approach in cooperation is strongly involved. Interregional universities cooperate with interregional companies across different industrial sectors. Cross-sectoral element is strongly supported as well, Plastr is a connection to other clusters, for example automotive.

Lessons learned:

Plastr supports companies in a wide range of R&D activities. Plastr can arrange required measurement, testing, analysis etc. either in its Centre for Modelling Products Made of Plastics or in facilities of its partners including regional CPS – Centre of Polymer Systems - Research Centre at the University of Tomáš Bata Zlín or CEITEC BUT.

Potential for learning & transfer:

Stakeholders are contributing and benefiting from mutual cooperation:

- CEITEC BUT and its research groups involved within the partnership as well as other universities and research centres involved – Plastr members
- Plastr members
- third parties - companies and other institutions who can benefit from the shared expertise (especially in case of multilateral collaboration projects).

Plastr members and CEITEC BUT have direct access to each other's services:

- Plastr has strong partners with wide scientific experience
- Plastr members have a unique access to the CEITEC BUT infrastructure and expertise
- CEITEC BUT has partners for both, contractual research and collaboration, and is capable to provide its expertise on interregional scale.

Time scale: 2014 – ongoing

No. 19

MERGE TECHNOLOGY CENTRE

OWNER: Chemnitz University of Technology MERGE Cluster of Excellence

GP LOCATION: Chemnitz, Germany

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DE

RIS3

- High Tech Systems and new materials

KETs

- Photonics, micro-nano electronics
- Advanced manufacturing
- ICT and digitalization

Short description of the GP

The cluster of Excellence MERGE Technologies for Multifunctional Lightweight Structures promotes the vision of merging basic technologies which are suitable for mass production aiming at resource-efficient, scalable and affordable production, usage and recycling of smart lightweight materials and structures. This way the uptake of the new materials and technologies by SMEs as well as their integration into new emerging value chains is being promoted.

The MERGE Technology Centre (MTC) is an infrastructure which has been established within the MERGE project. It includes interlinked manufacturing cells, versatile processing areas and modular system concepts. As part of the Technology Campus of Chemnitz University of Technology it provides research equipment and high-tech incubation conditions for more than 23 regional research institutes and their partners from all over Europe.

The heart of the complex is the integrated manufacturing complex MERGE. It has been constructed especially for MERGE and allows to combine the processing of plastic and metal materials. It is based on a multi-component swivel-platen injection moulding machine KM 2500-24500-8100 with a clamping force of 25,000 kN and three injection units in 0°, 90° and 180°. The machine can also be used for the production of foamed structures on a microcellular level as well as a combination of injection moulding with thermoplastics and thermosets.

Evidence of achievement

- A top-class innovation lab with excellent conditions for cross-fertilization between all sectors which are involved in the development of lightweight solutions, such as the automotive and aerospace industry, the mechanical engineering, ICT, chemical and textile industries;
- Strong focus on the transfer of the new technologies in industrial applications and at making them scalable and affordable for regional SMEs;
- 250 SMEs have already used the facilities during the last 3 years.

Lessons learned:

It is important to:

- focus on a long-term strategy and organize a permanent internal evaluation process that guarantees a strategic alignment with changing scientific challenges and market needs of the industry;
- implement smaller research modules, which can be flexibly composed to autonomously working units and equipped with cross-cutting testing and manufacturing infrastructure.

Potential for learning & transfer:

- **Offer of integrated Innovation support for SMEs and mechanisms for their access to the RII:** MERGE offers to the targeted SMEs an integrated innovation management and business development support. That includes the provision of technology- and market related information, consultancy and project management services. That service package is being organised through a close linkage of all innovation management and business support service providers. This way the aim to develop high-tech solutions, which are affordable for SMEs can be achieved.
- **International integration and collaboration:** MERGE strives to identify complementary RII facilities in other European regions along the new manufacturing value chains. That helps to organise related interregional innovation support offers, to use the RII investments efficiently and to develop them in a sustainable way.

Time scale: 2014 – ongoing

No. 20

INNOVATION PLATFORM "FUTURESAX"

OWNER: Saxon State Ministry of Economic Affairs, Labour and Transport

GP LOCATION: Saxony, Germany

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DE

RIS3

- High Tech Systems and new materials

KETs

- Photonics, micro-nano electronics
- Advanced manufacturing
- ICT and digitalization

Short description of the GP

FutureSax is the innovation platform of the Free State of Saxony. This project of the Saxon State Ministry of Economic Affairs and Labor aims at setting impulses for innovation and industrial growth through innovations. The target groups of the project are growth oriented regional companies and start-ups. It brings together actors from the triple helix, business and innovation service providers in order to initiate investments and new business developments, particularly in Saxon SMEs and start-ups. FutureSax is a cross-cutting, service and culture-oriented art of the regional RII. It provides information, communication, mentoring, coaching and networking services. It is the most visible regional professional knowledge network for innovation. FutureSax organizes customized events and workshops for entrepreneurs, start-ups, researchers and potential investors. More than 7000 regional actors are connected with the FutureSax innovation and knowledge network. Besides the yearly innovation and business plan competitions and prizes the project organizes workshops, matching events, innovation pitches, investors' roadshows, innovation showcases. The FutureSax innovation radar is an important source of information for potential investors and innovation partners. The living new formats of the FutureSax events attract many companies and researchers and contribute to a healthy and dynamic innovation culture in Saxony.

Evidence of achievement

- FutureSax is an inductive innovation ecosystem with a living innovation culture
- It builds bridges between the researchers, the start-up community and potential investors through innovative event and networking formats
- It brings together more than 7.000 actors of the regional innovation system aiming at facilitating the implementation of the Regional Smart Specialization Strategy
- FutureSax alumni are to find among the hidden champions, market-leading SMEs in Saxony.

Lessons learned:

- The development of a vibrant regional innovation culture besides the establishment of research and innovation facilities often is underestimated.
- But it is an important precondition for an efficient system of regional RII and should be developed with a strategic perspective.
- Finally, it contributed to an increased success rate of the innovation projects in Saxony.

Potential for learning & transfer:

- **Regional innovation cultures facilitate collaborative innovation projects and shared infrastructures:** The regional innovation culture is an important factor of investment-intensive research infrastructures. In a knowledge-driven globalized economy it is crucial to invest also in the soft and cultural factors for innovation and interregional co-operation. They are also important preconditions for the implementation of business models for shared RII in an interregional context.
- **Implement the European perspective:** FutureSax has created a favorable basis for the identification and exploration of innovation potentials and has proven a positive impact on the development of the innovation ecosystem. The new formats are suitable to be adapted also by partnering regions for other suitable regional events and formats, such as interregional knowledge-networks and innovation hubs. They could provide a low barrier-entry for SMEs and start-ups to international innovation projects and shared RII.

Time scale: 2002 – ongoing

Find out more about the INNO INFRA SHARE project

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