REPUBLIC OF SLOVENIA
MINISTRY OF ECONOMIC DEVELOPMENT AND TECHNOLOGY

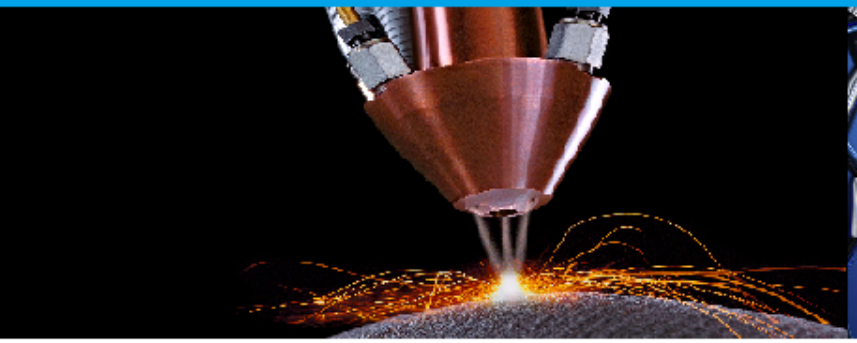
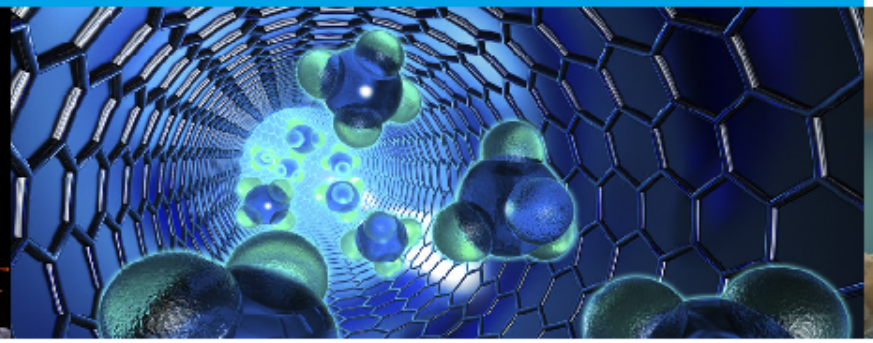
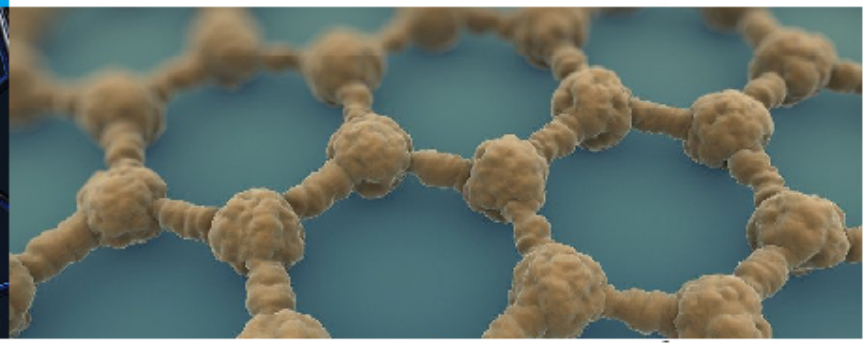
EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND



Strategic Research Innovation Partnership Factories of the Future

RUDI PANJTAR

SRIPTOP
Strategic Research Innovation Partnership
FACTORIES OF THE FUTURE

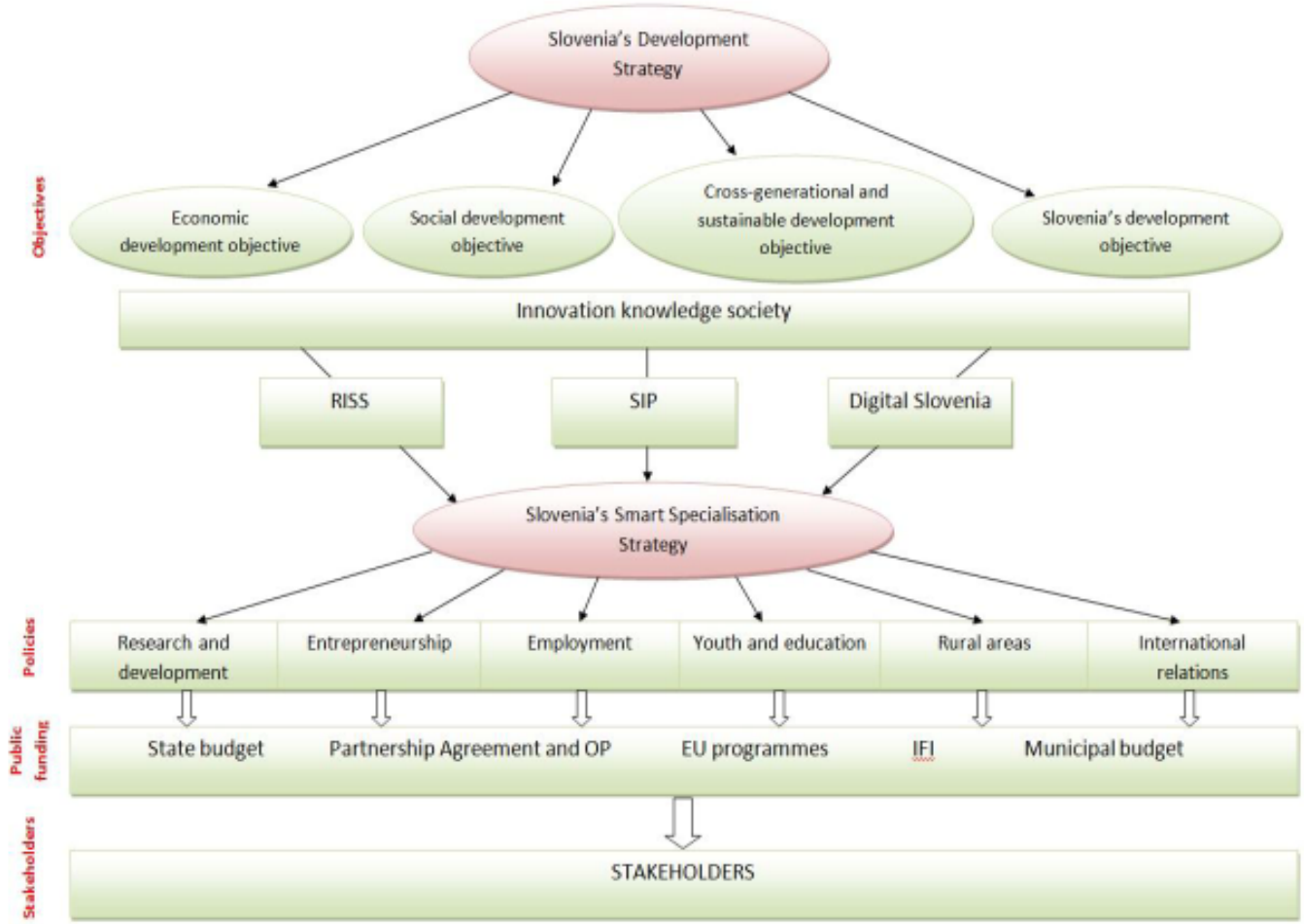
Jožef Stefan Institute

kcstv competence centre for advanced control technologies

TEO
RAZVOJNI CENTER ORODJARSTVA SLOVENIJE
SLOVENIAN TOOL AND DIE DEVELOPMENT CENTRE

Gospodarska zbornica Slovenije

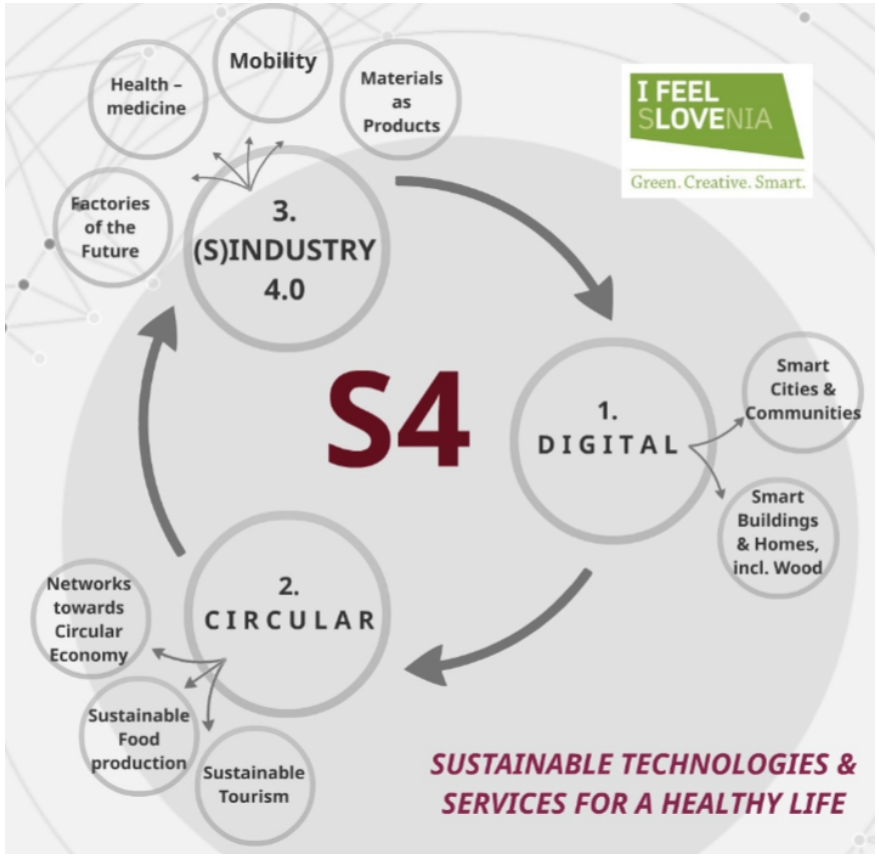
Slovenia's Smart Specialization Strategy - S4



1. Consensus,what we want with holistic aproach.
2. Aligning strategies
   - Research strategy (RSS)
   - Production strategy (SIP)
   - Digitalization strategy
3. Smart specialization strategy impact and priorities?
4. How we will finance it?
5. Who will be stakeholders ?

http://www.svrk.gov.si/fileadmin/svrk.gov.si/pageuploads/SPS_predstavitve/S4_dokument_2015_october_eng_clean_lekt.pdf

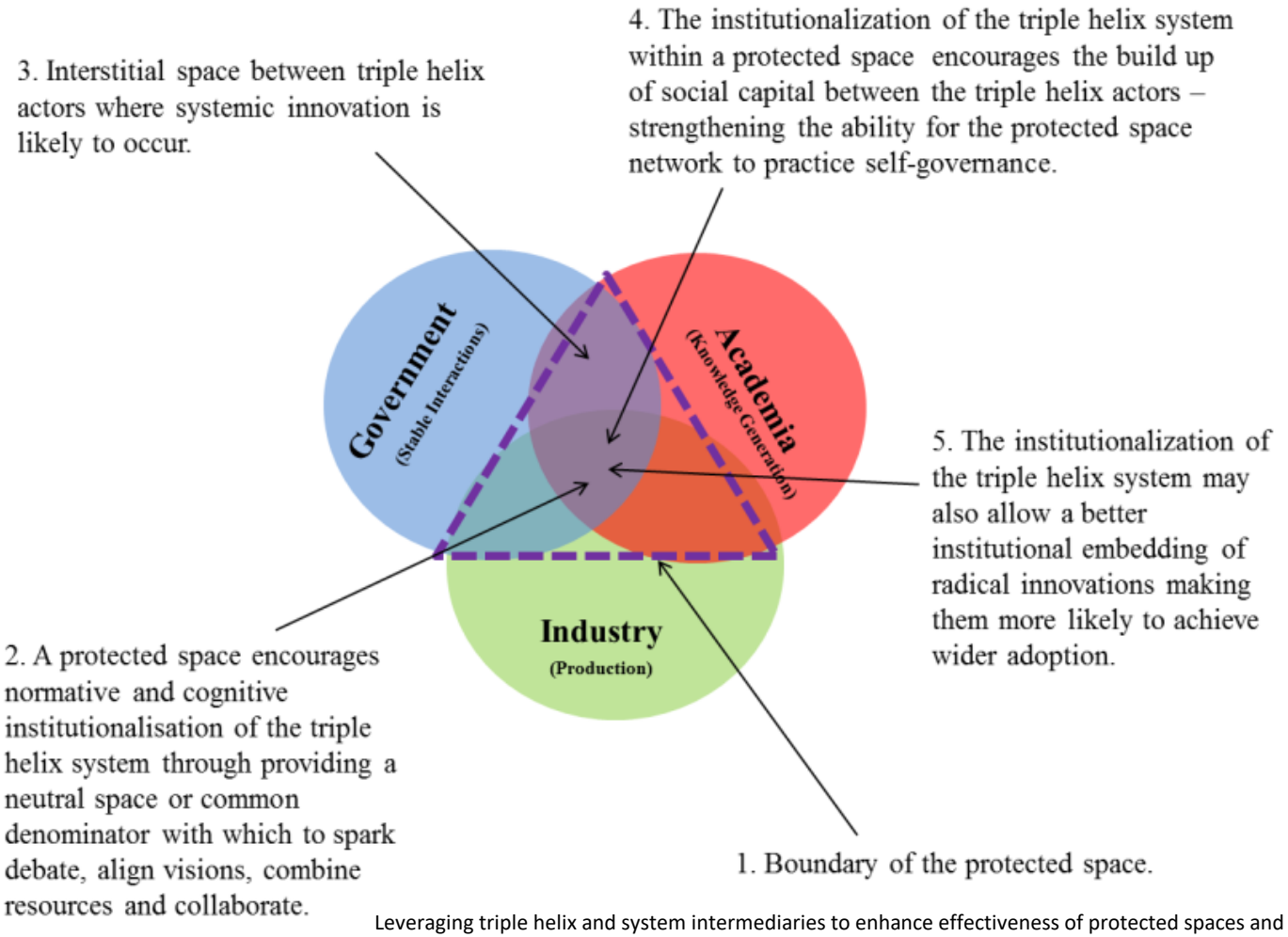
What is SRIP (Strategic Research Innovation Partnership)?



Three pillars and nine domains in Slovenian Smart Specialization Strategy S4

SRIP is long term public & private partnership among (1) firms, (2) knowledge institutions, (3) the state and municipalities and (4) facilitators, users and NGOs which pools investment and intellectual potentials and sets up a comprehensive innovation ecosystem with the aim of entering global markets and improving SI positions in global value networks in S4 priority domains.

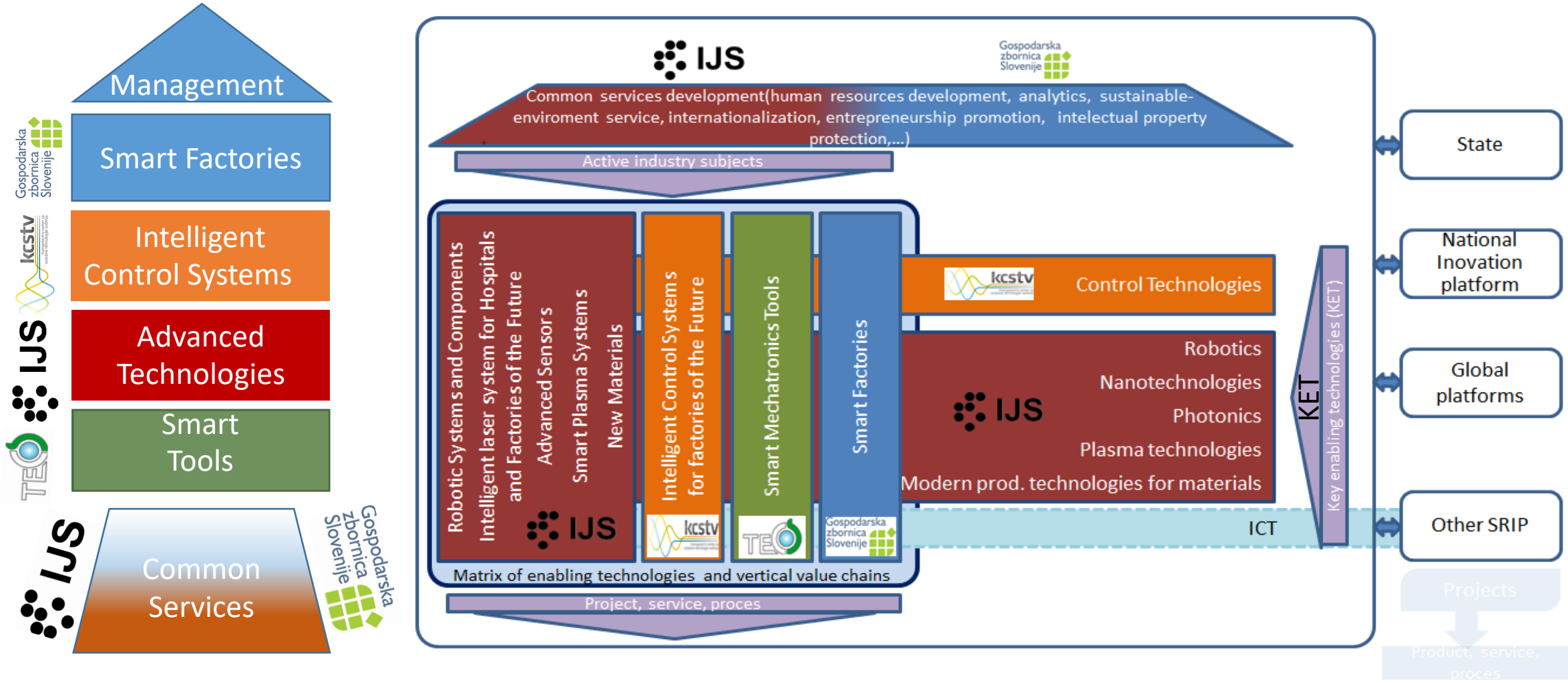
SRIPs as System Intermediaries



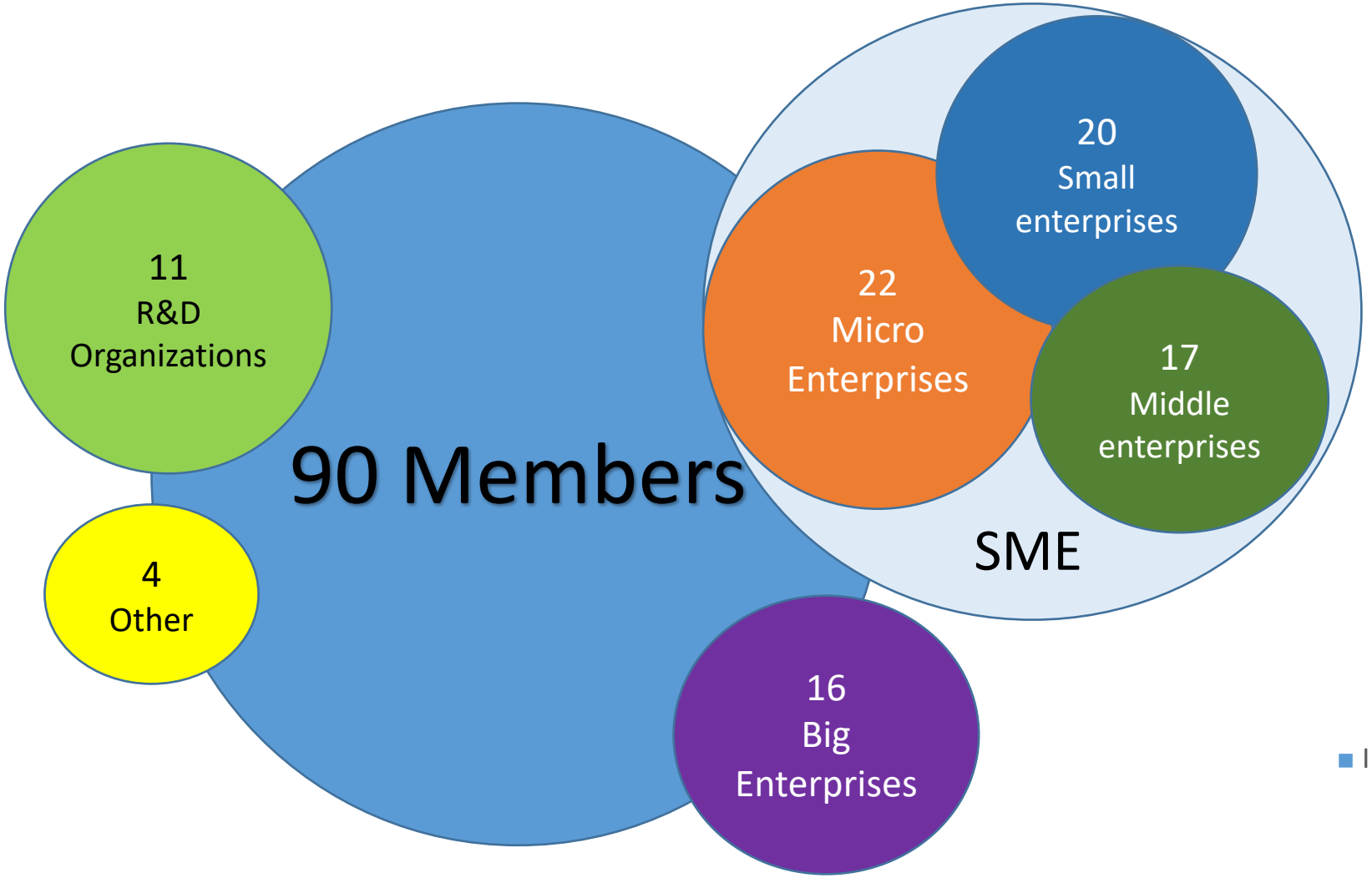
- SNM (small niche market) concept
- New relations between Triple Helix members (cohesion and translation, align vision, combine resources, collaboration…)
- Spreading bottom up initiatives on focus areas to all members
- Early awareness of new technologies and challenges of their exploitation
- Early government reactions
- Holistic approach

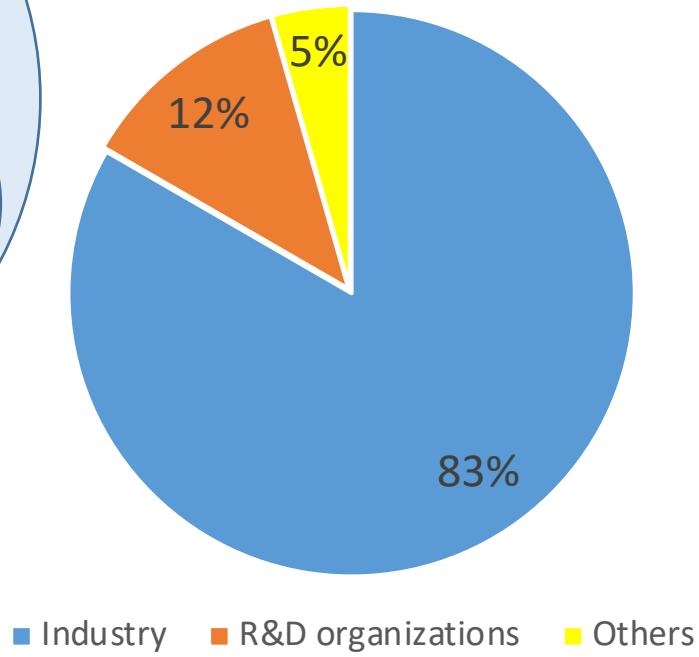
Leveraging triple helix and system intermediaries to enhance effectiveness of protected spaces and strategic niche management for transitioning to circular economy -Jack Barrie, Girma Zawdie and Elsa João (University of Strathclyde, Glasgow, UK)

SRIP FoF Structure



Membership

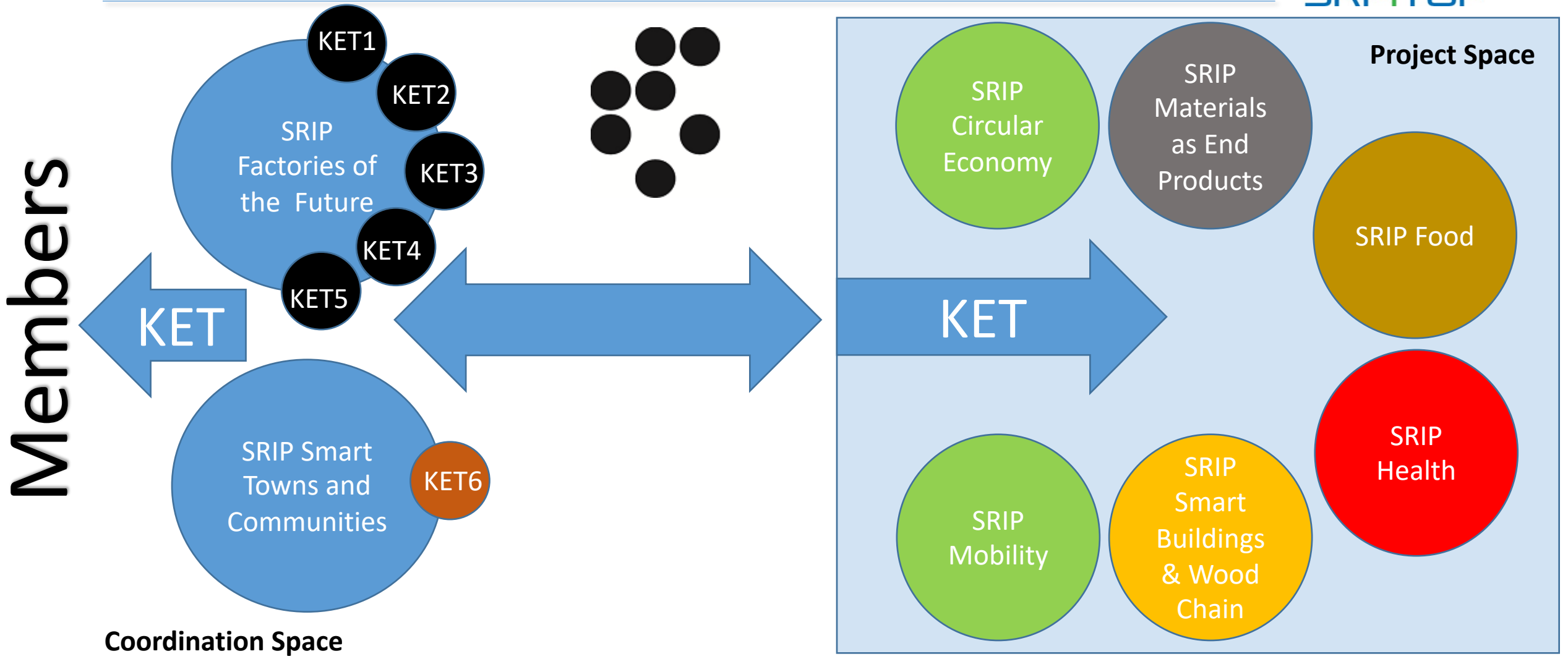

11
R&D
Organizations
4
Other
90 Members
20
Small
enterprises
22
Micro
Enterprises
17
Middle
enterprises
SME
16
Big
Enterprises


5%
12%
83%
Industry
R&D organizations
Others

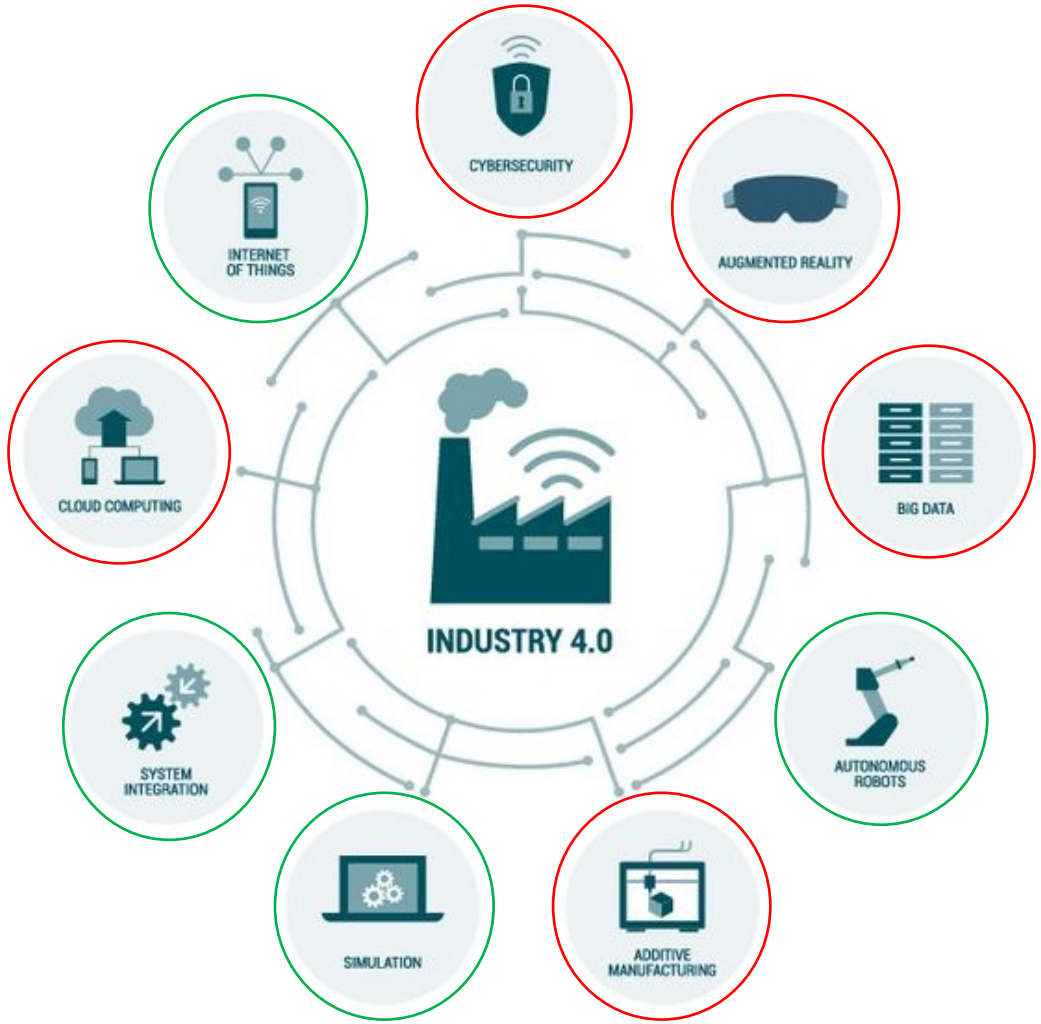
Our Members


DESLO AHK
YASKAWA
RENAULT Revoz, d.d.
DOMEL
JUB
Danfoss
RIKO RIBNICA
COSYLAB
gorenje
UNIOR
Iskra
HELIOS
INEA
spica
POLYCOM
Integrated Polymer and Mould Solutions
Fotona
KOLEKTOR
KOLEKTOR GROUP d.o.o.
METRONIK
PODKRIŽNIK
LPKF
Laser & Electronics
robotina

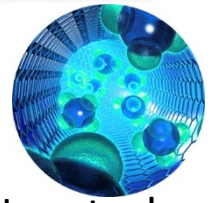
S4 and Jožef Stefan Institute



Supported technologies for I4.0

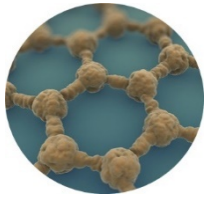


KET Extensions



Nanotechnologies

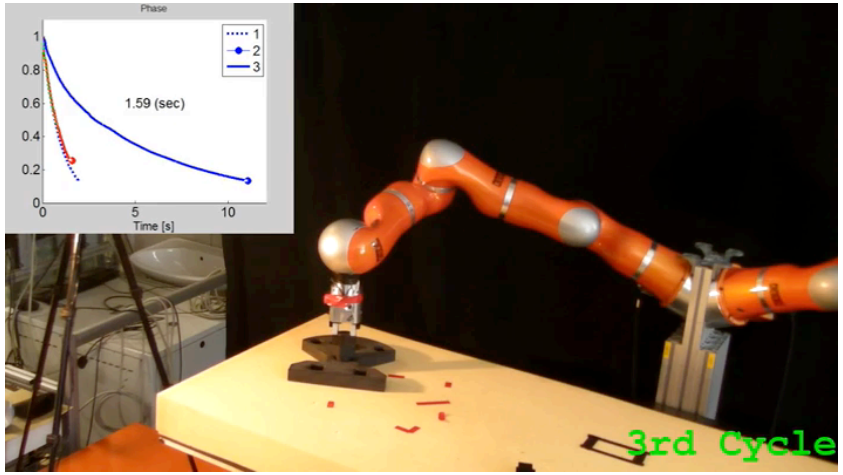
Plazma technologies

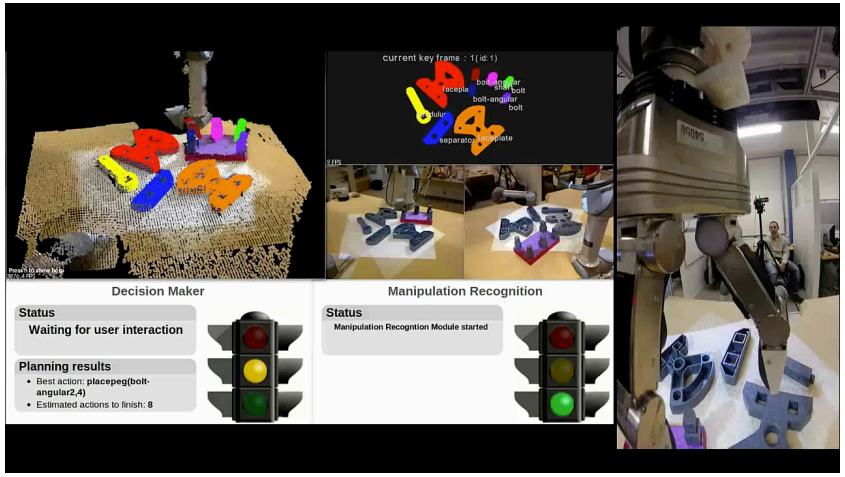


New materials

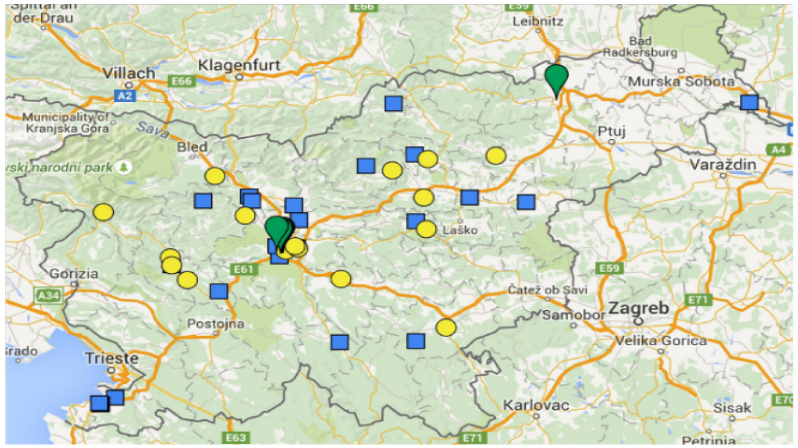
Photonics

Advanced Technologies - Robotics





Robot technologies for the next generation industry



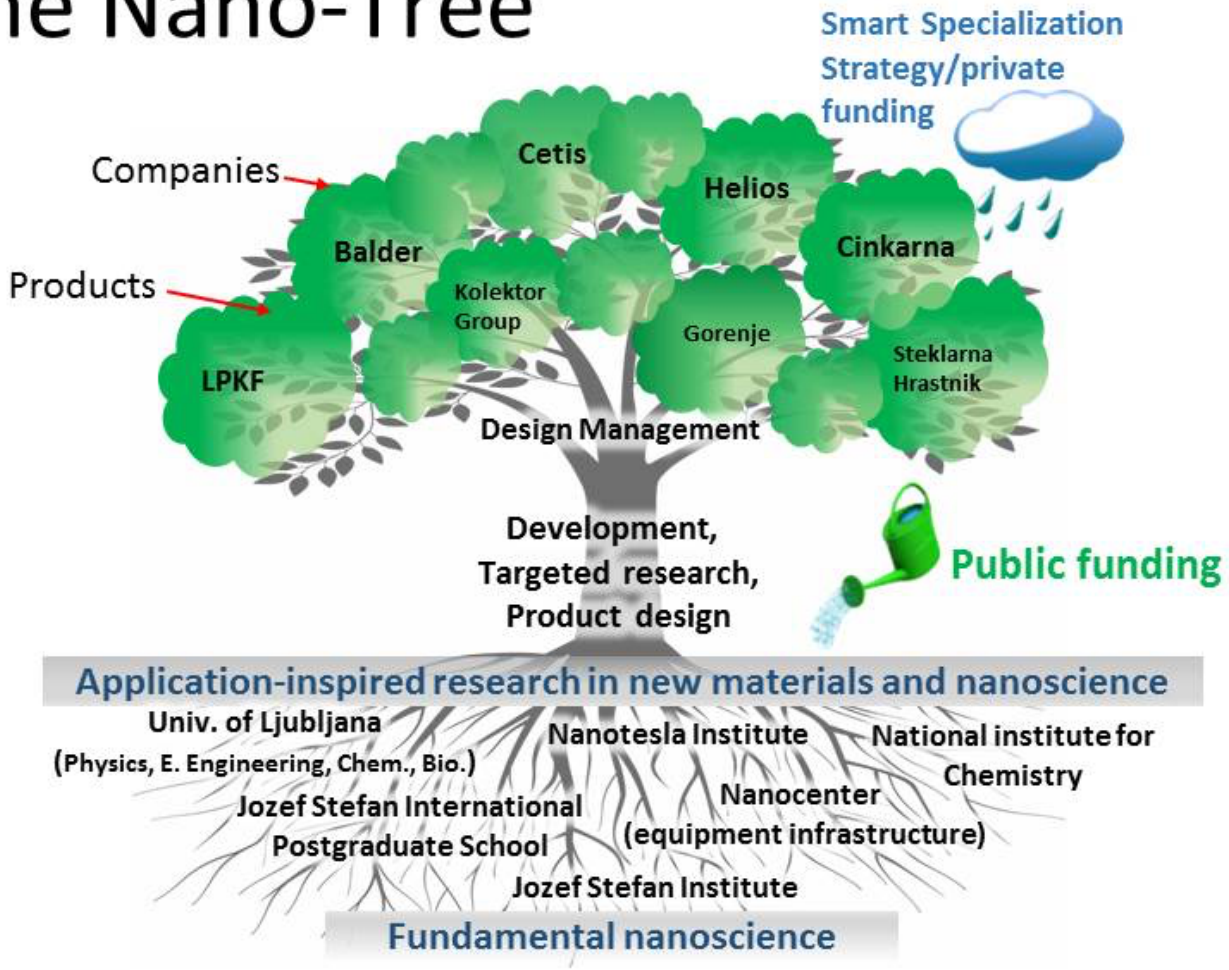
Robotics: research institutions (universities and institutes) (11),
Robotics: robot manufacturers, robotic system and equipment suppliers (25),
End users (industrial production) (14).

Key Topics

Robot manufacturing
Advanced robotic components (sensors, actuators)
Advanced robotic systems (cobots, cognitive robots…)
Advanced robotic vision and vision sensors
Advanced cooperative robot cells

Advanced technologies - Nanotehnologies

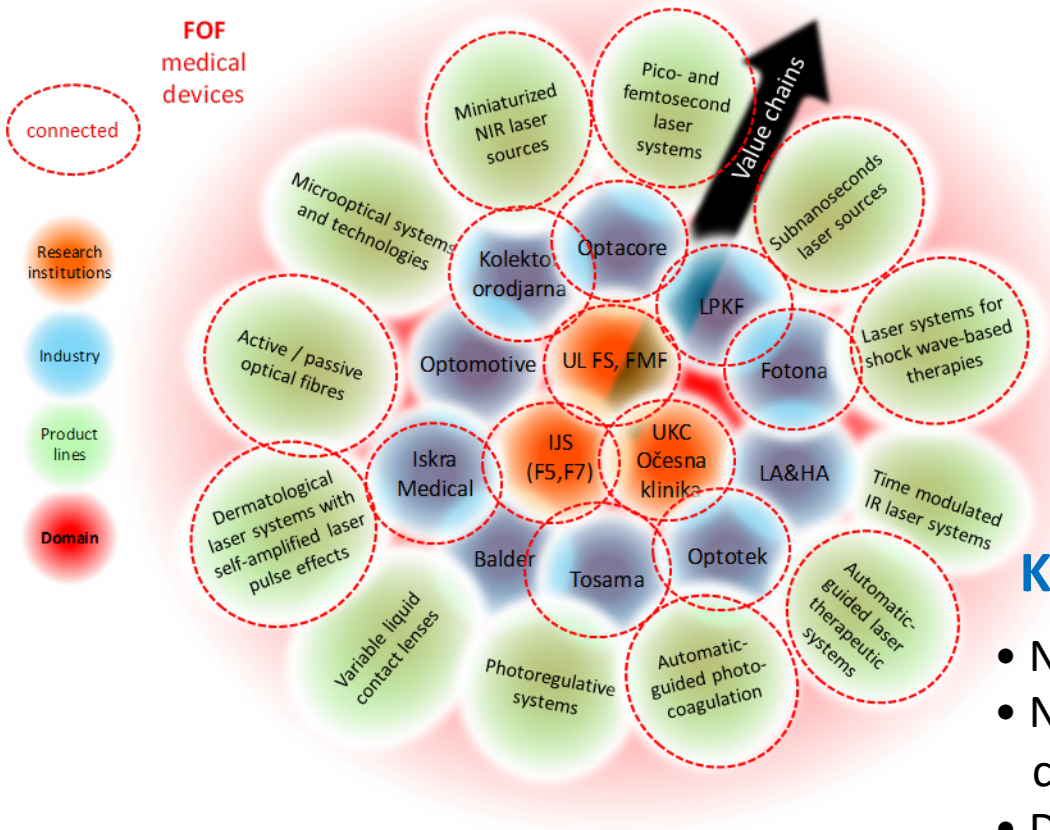
The Nano-Tree

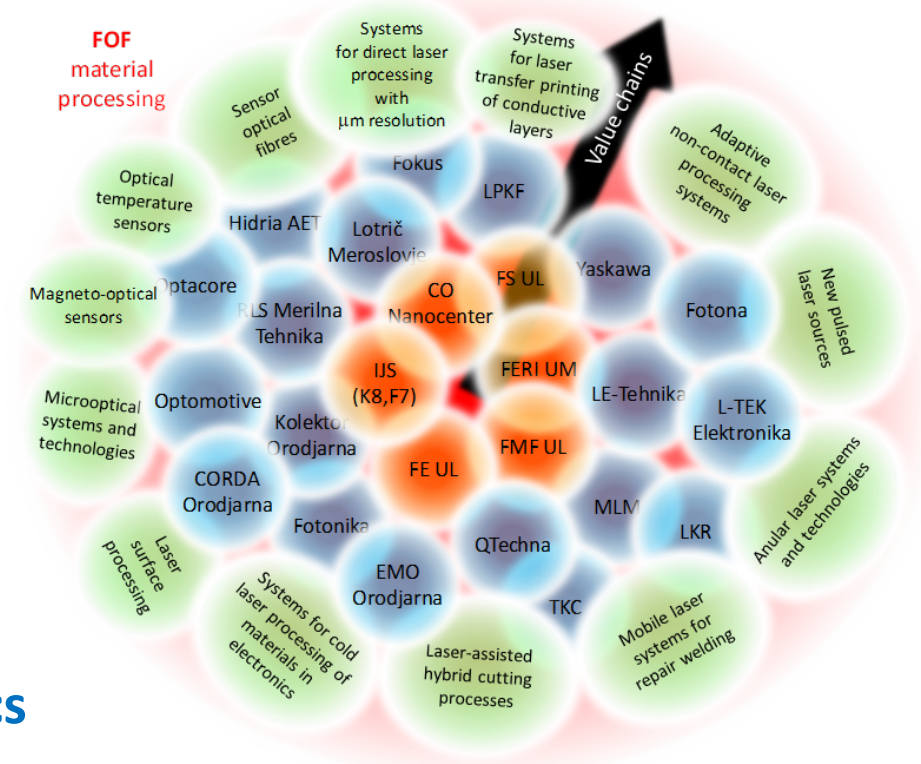


Key Topics

- ***Smart nano bio/chemo sensors***
- ***Smart coatings and surfaces***
- ***Components in industry 4.0***
- ***Developing smart environmental management systems and resources***

Advanced technologies - Photonics

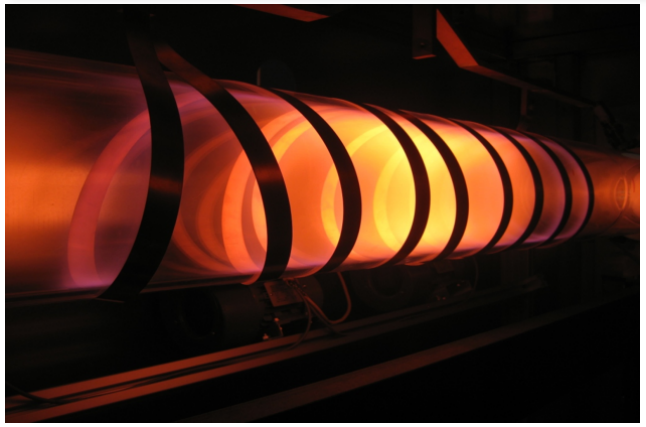




Key Topics

- New concepts of special laser sources.
- New digital processing technologies, smart diagnostics and digital-controlled therapeutics.
- Development of special active and passive optical fibers of the next generation.

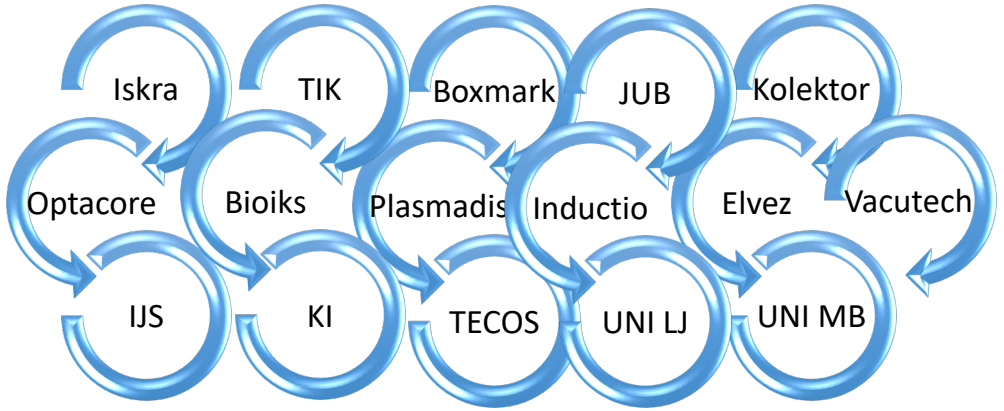
Advanced Technologies - Smart Plasma Technologies



Big companies

Small and Medium companies

R&D Organizations



Goals:

- Higher added value products and competitiveness on the market.
- Chemical processes substitution (Go Green!)
- Produce cheaper and faster!

Cold plasma – green technology!

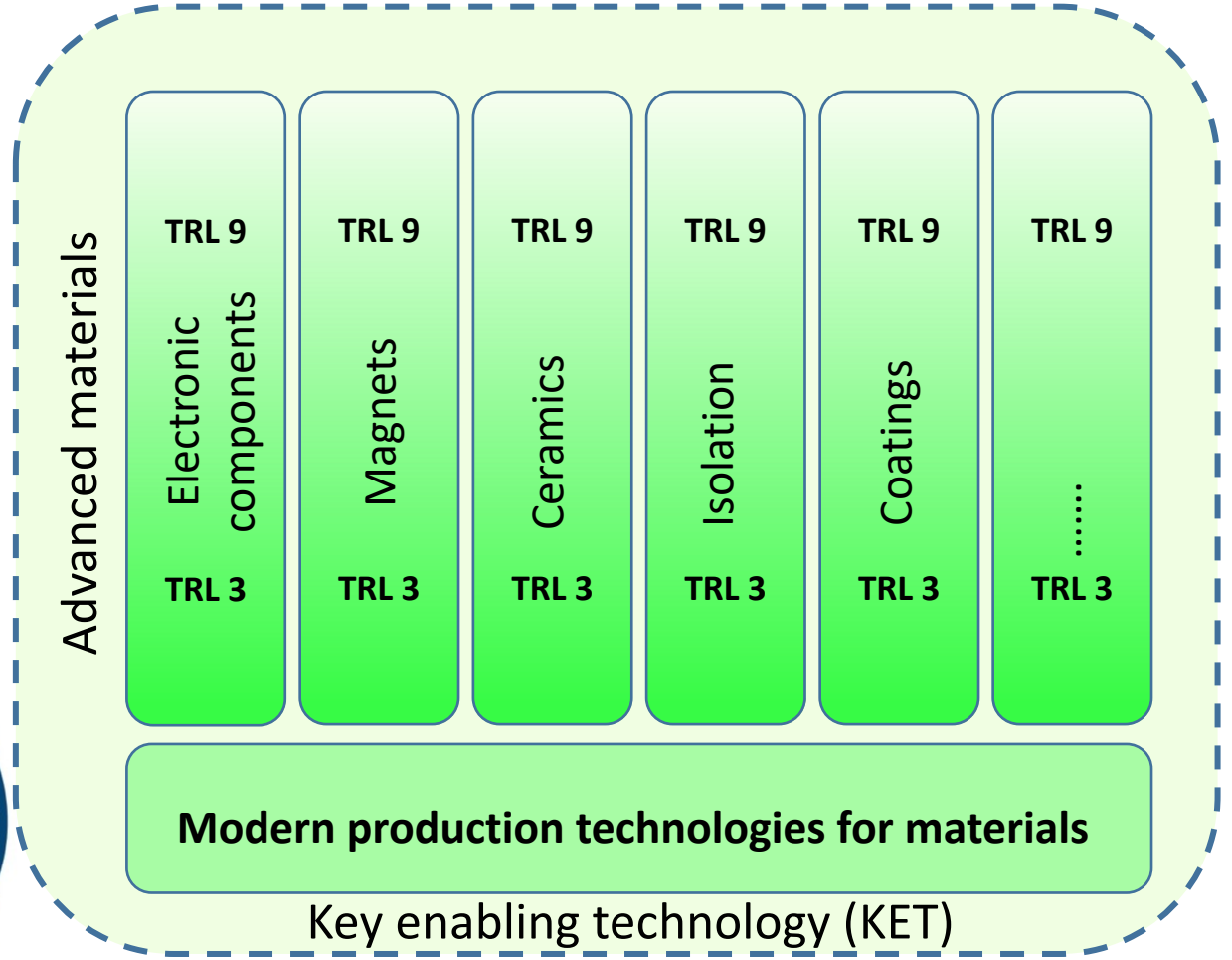
Key Topics

- Etching and activation of materials
- Plasma treatment for materials (bio medicine, agriculture)
- Large surface plasma reactor
- Sterilization and activation of packing film
- Cleaning of metals
- Plazma process control sensors

Modern production technologies for materials

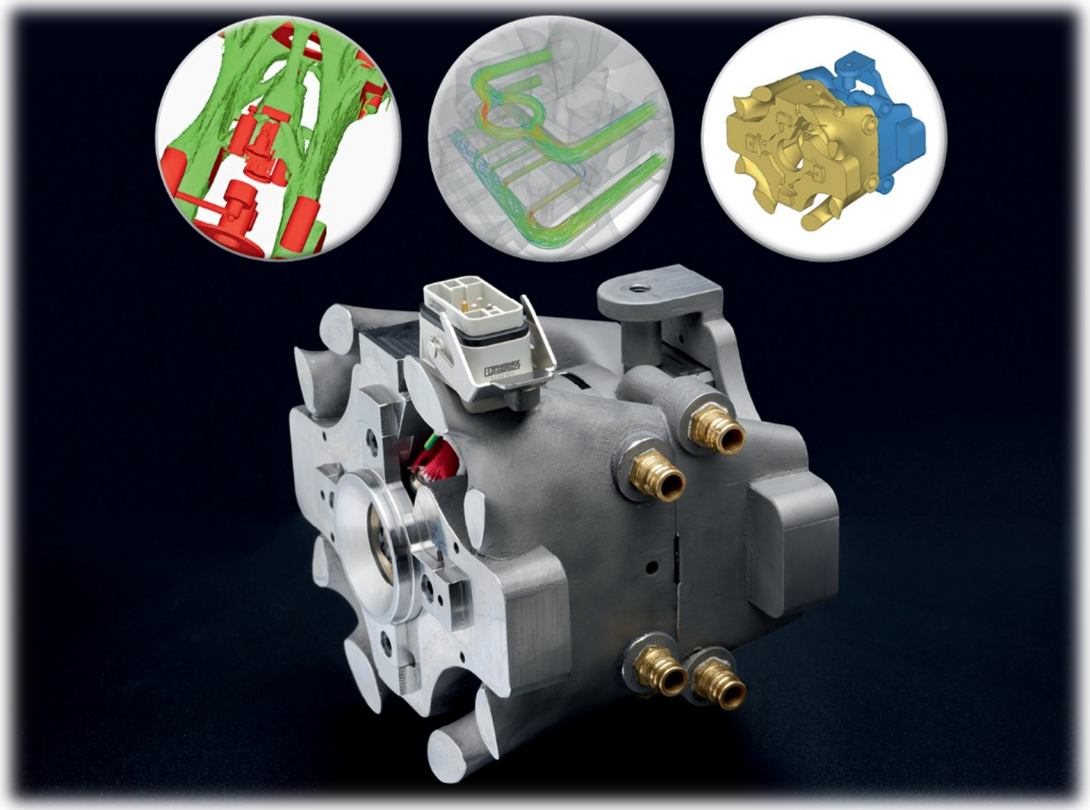
Key topics:

- Replacement of ***toxic*** *lead in PTCR heaters (electric cars)*
- Replacement of ***rare elements*** *in magnets*
- Improved mag materials ***recycling***
- ***Clean room*** *technologies*
- ***PLD*** *(Pulsed Laser Deposition)*



Award for reuse of recycled magnets with rare earths, produced without any waste material.

Smart Mechatronics Tools

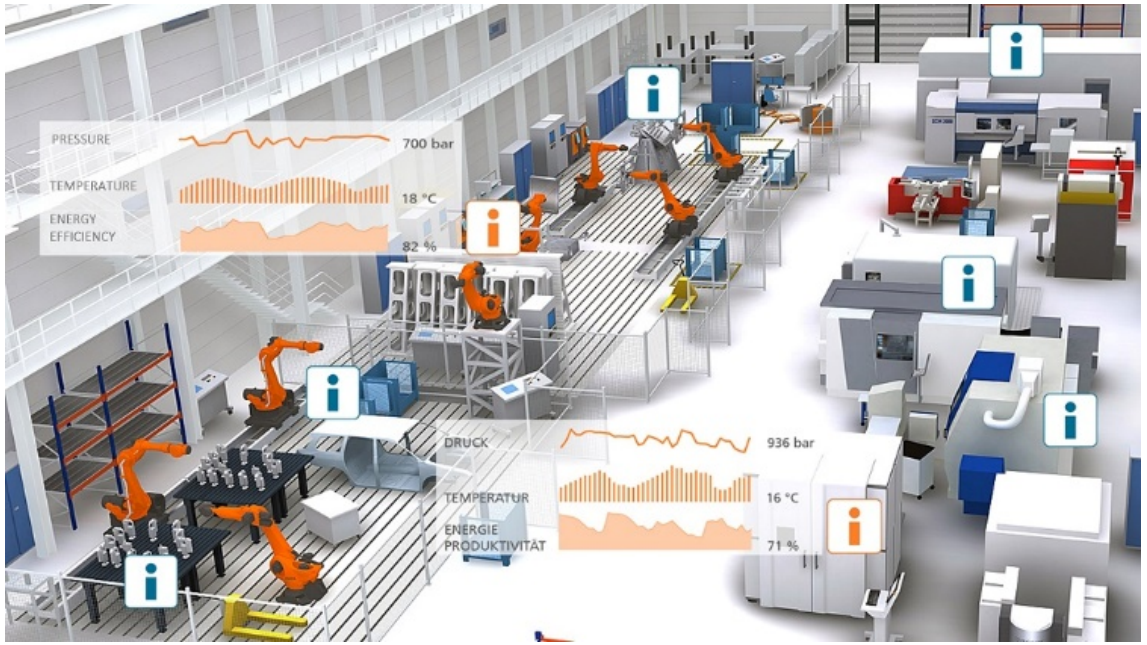


Tools are becoming smart & integrated part of cyber- physical solutions!

Key Topics

1) **Development of smart mechatronic tools** (sensors, IOT, AI, maintenance).
2) **Simulation „in vitro“** (design optimization).
3) **Advanced optimization algorithms.**
4) **Application development** (cloud computing plug-ins and communication).
5) **Integration (**production line, traceability of process parameters, tool operation & transformation, resource and product status, machine vision control, connection to the smart production platform)
6) **Advanced production process and prototype technologies** (additive technologies, prototype tools and tool components, development of new materials)

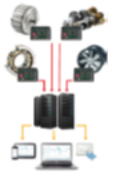
Intelligent Industrial Automation Management Systems

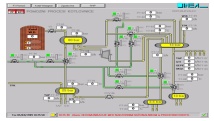


Intelligent building blocks for industrial automation– brains of every factory of the future!

Key Topics

- **Integrated MES systems.**
- **Predictive maintenance, forecasting and condition assessment of production devices and machines.**
- **Industrial IoT.**
- **Artificial intelligence in systems management and optimization.**
- **Energy in complex systems.**
- **Digital twins in technical processes**


Smart Factories

Key topics

1) I 4.0 maturity assesment methodology.
2) Smart factory reference architecture & demo plant.
3) Comparative Analysis of Industry 4.0 platforms.
4) Evaluation of artificial intelligence methods in production.
5) Development and implementation of automatically adjustable digital twins.
6) The concept of self-adaptive and self-learning architecture of the agent-based decision-making system at the factory level.
7) Data analysis as source for new business models, business and process intelligence.
8) Industry 4.0 demonstration nodes network.

Giving real value showcase to industry!

Main Activities for Members

- Advanced Technology scouting & implementation
- Technology transfer
- Sectorial Strategy development
- Promotion of Joint R&D
- Project coordination
- Internationalization
- Workers competencies for future technologies
- Entrepreneurship
- Environment protection
- Members Interlocutor to State

https://www.sqa.org.uk/sqa/images/svq_late_education_000015704019XSmall.jpg

„ Being involved in SRIP does not give any advantage to participating actor when applied for state funding, only the ability to co-create development of the policy in area of activity.”

WE DARE MIGHTY THINGS!

Strategic Research Innovation Partnership
FACTORIES OF THE FUTURE

SLOVENIJA - Green. Creative. Smart.

Rudi Panjtar

Thank you for your attention!