



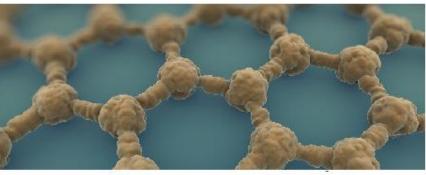


Strategic Research Innovation Partnership Factories of the Future RUDI PANJTAR



Strategic Research Innovation Partnership FACTORIES OF THE FUTURE









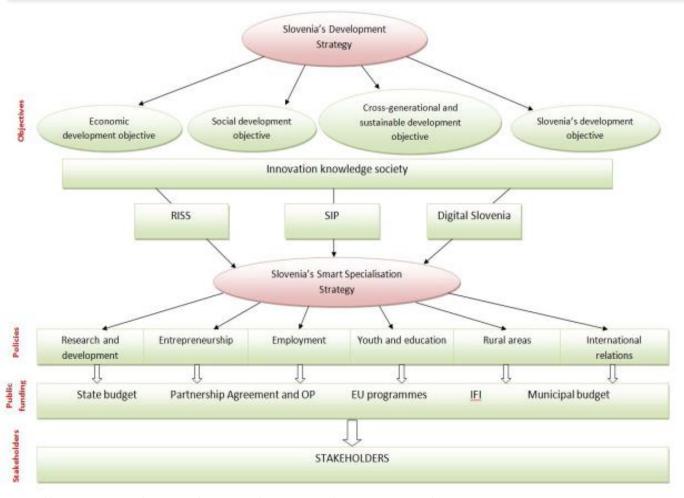


SLOVENIAN TOOL AND DIE DEVELOPMENT CENTRE



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



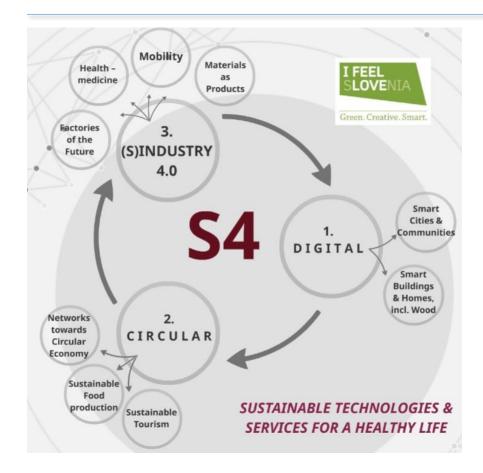






What is SRIP (Strategic Research Innovation Partnership)?





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.











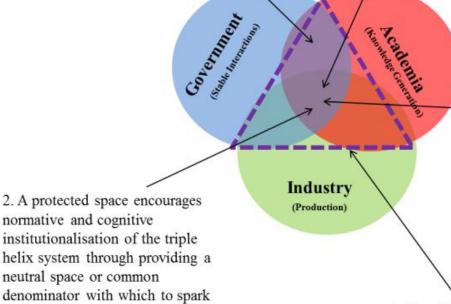
Date: 8. July 2020, Rudi Panitar

SRIPs as System Intermediaries



3. Interstitial space between triple helix actors where systemic innovation is likely to occur.

4. The institutionalization of the triple helix system within a protected space encourages the build up of social capital between the triple helix actors — strengthening the ability for the protected space network to practice self-governance.



5. The institutionalization of the triple helix system may also allow a better institutional embedding of radical innovations making them more likely to achieve wider adoption.

1. Boundary of the protected space.

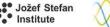
- SNM (small niche market) concept
- New relations between Triple Helix members (cohesion and translation, align vision, combine resources, collaboration...)
- Spreading bottom up initiatives on focus areas to all members
- Early awareness of new technologies and challenges of their exploitation
- Early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













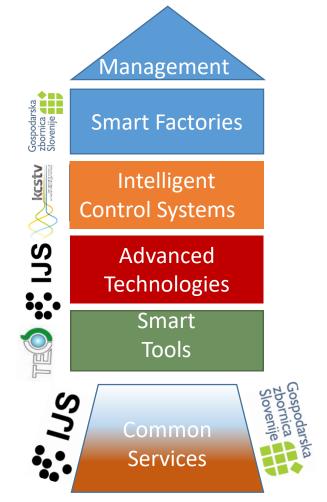


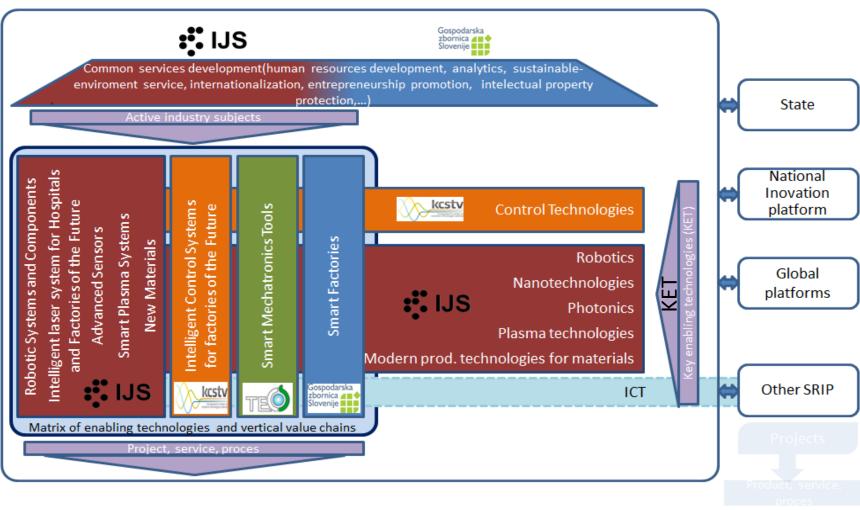
Date: 8. July 2020, Rudi Panitar

debate, align visions, combine resources and collaborate.

SRIP FoF Structure











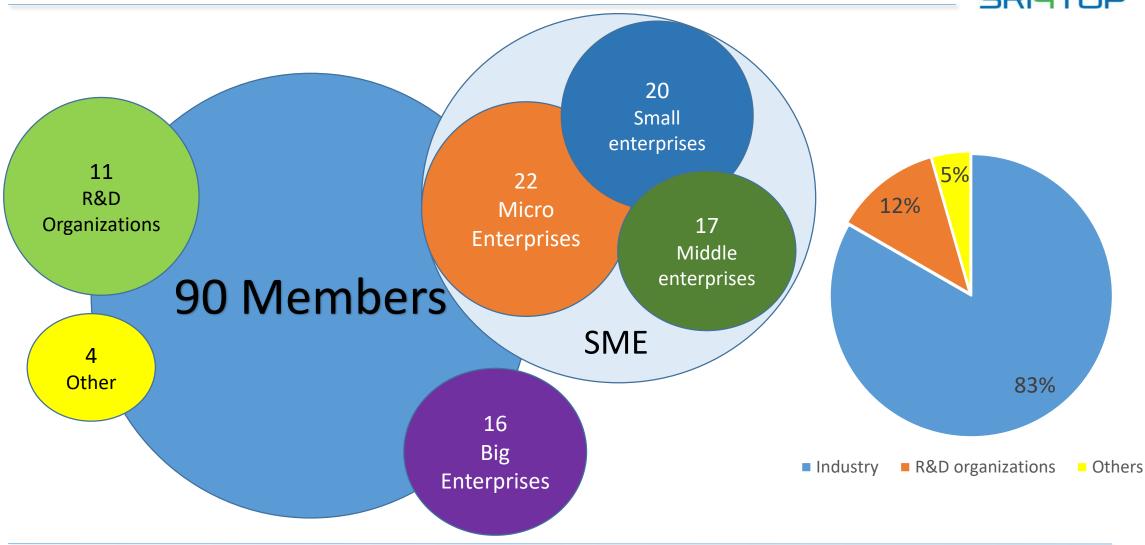






Membership

















Our Members





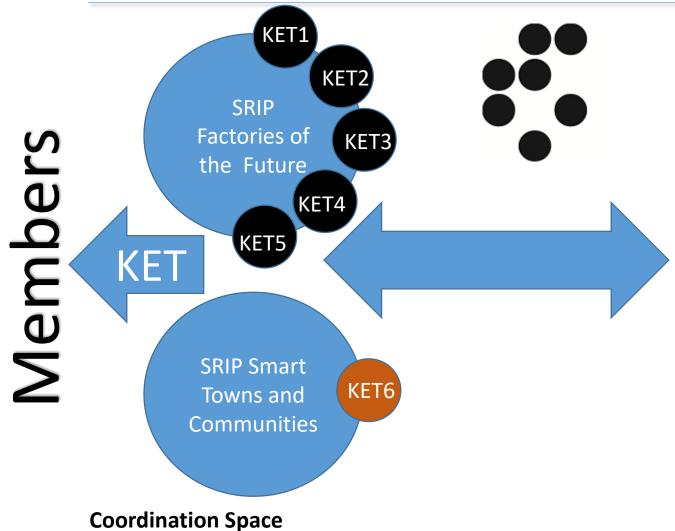


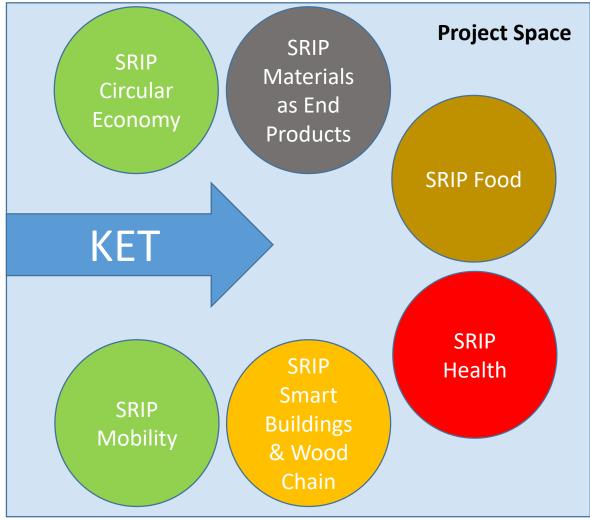




S4 and Jožef Stefan Institute







SBRA 2020

Date: 8. July 2020, Rudi Panjtar





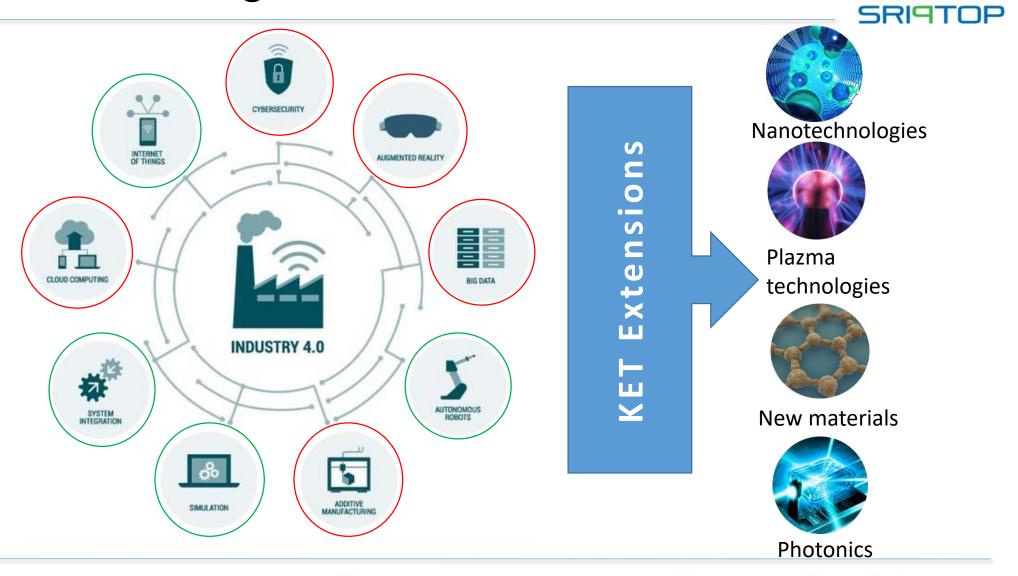








Supported technologies for I4.0



SBRA 2020

Date: 8. July 2020, Rudi Panjtar







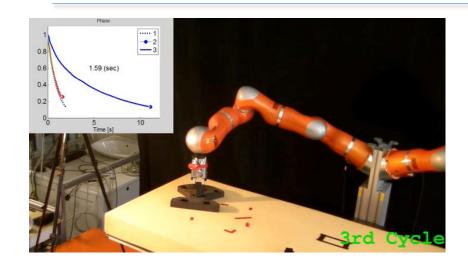


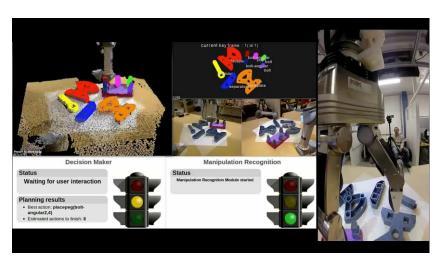




Advanced Technologies - Robotics







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...)

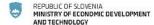
Advanced robotic vision and vision sensors

Advanced cooperative robot cells



Date: 8. July 2020, Rudi Panjtar







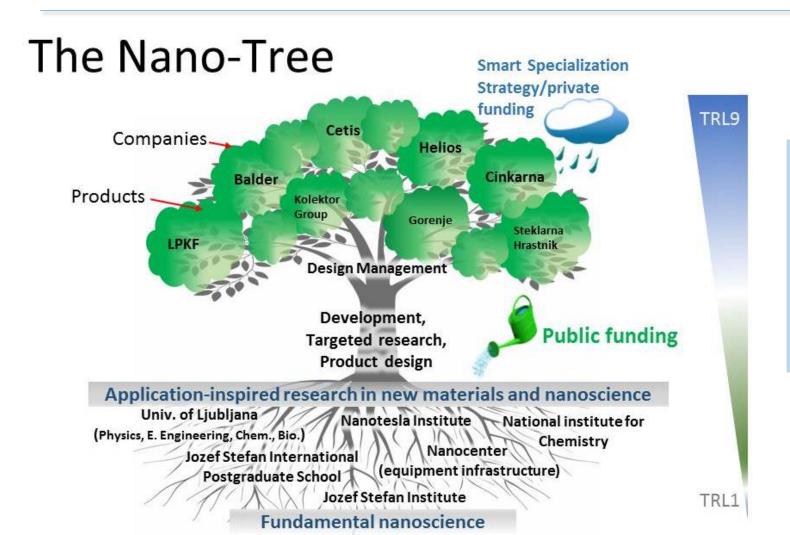






Advanced technologies - Nanotehnologies

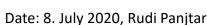




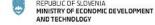
Key Topics

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











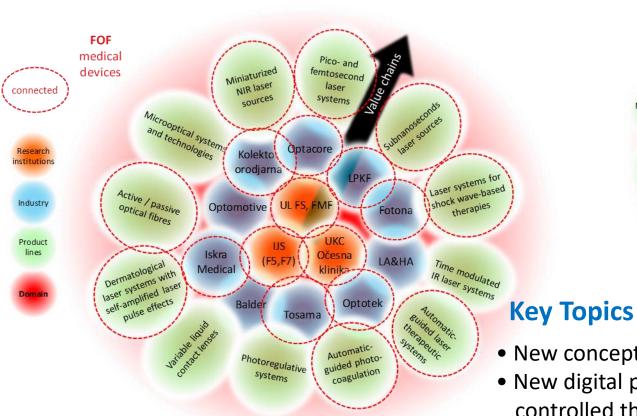


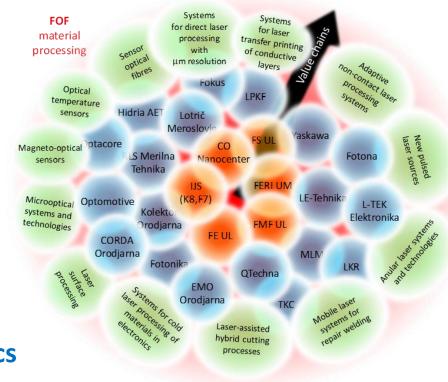




Advanced technologies - Photonics







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













Advanced Technologies - Smart Plasma Technologies

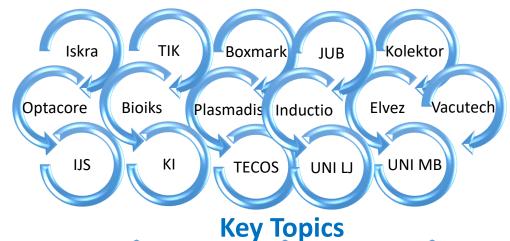




Big companies

Small and Medium companies

R&D Organizations



Plasma

treatment for materials

(bio

medicine,

agriculture)

Goals:

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

Date: 8. July 2020, Rudi Panitar



Sterilization and activation of packing

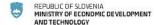
Cleaning of metals

Plazma process control sensors

Cold plasma – green technology!









film

Etching and

activation

of

materials







Large

surface

plasma

reactor

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.

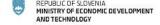


TRL9 TRL9 TRL9 TRL9 TRL9 TRL9 Advanced materials components **Magnets** Coatings Ceramics Isolation TRL 3 TRL 3 TRL 3 TRL 3 TRL 3 TRL 3

Modern production technologies for materials

Key enabling technology (KET)













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.



- Artificial intelligence in systems management and optimization.
- Energy in complex systems.
- Digital twins in technical processes























Smart Factories





Giving real value showcase to industry!

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.
- 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.
- Data analysis as source for new business models, business and process intelligence.
- 8) Industry 4.0 demonstration nodes network.











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!









