Exploring collaboration opportunities & synergies between RIS3 and EIT-RIS

European Commission JRC & EIT Climate-KI

Ljubljana, 20 March 2018

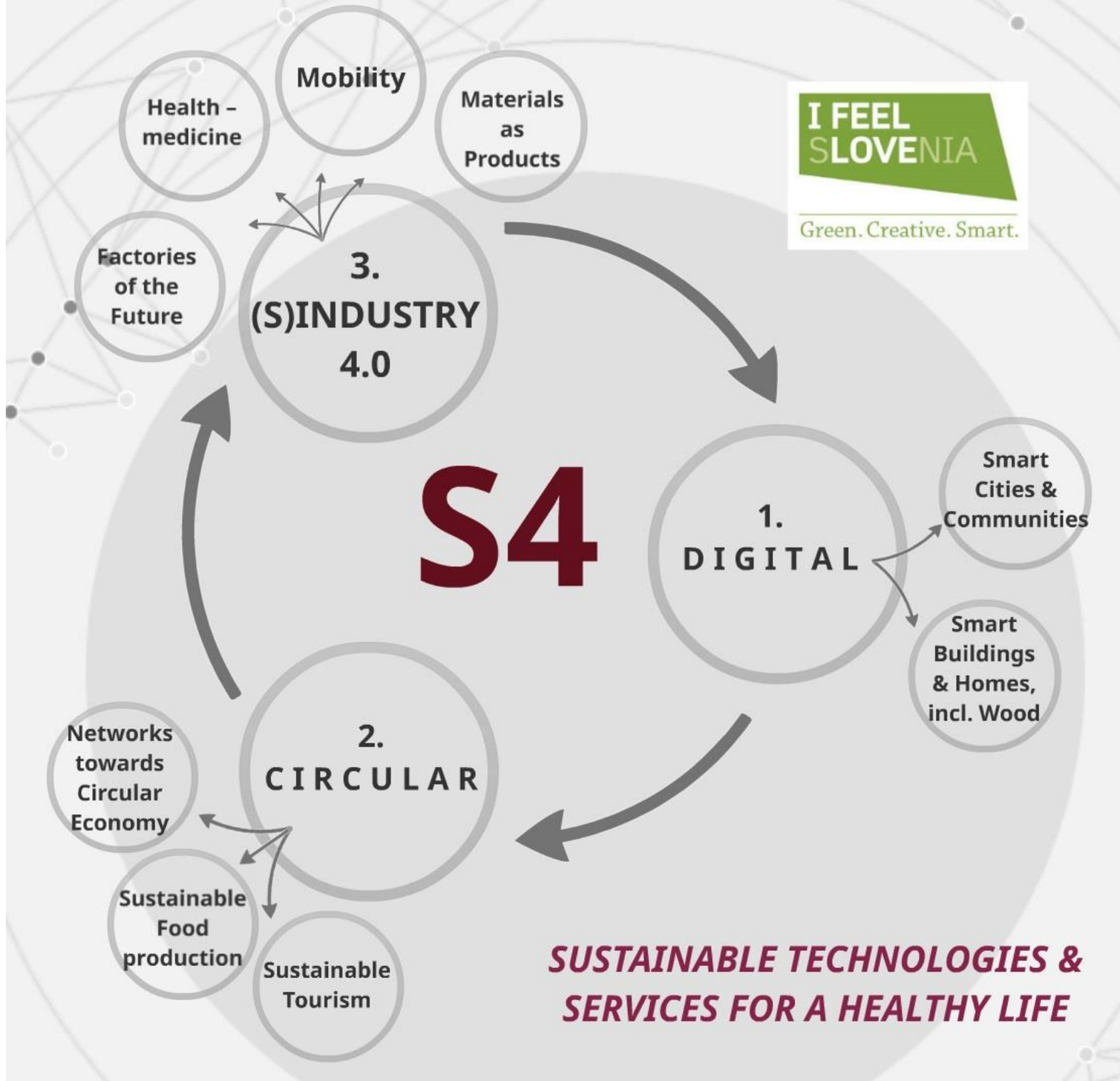
Name: dr. Peter Wostner

Title: Head of unit

Organisation: Government Office for Development and Cohesion Policy, Smart Specialisation Unit

European Commission

European Commission



European Commission

Table of priorities of the Slovenian Smart Specialisation Strategy (S4) and related focus areas and technologies

Vertical

Smart cities and communities

Health
- Smart devices, sensors and in tele-health
- Smart curative
- Digital health
- Smart systems of integrated health and care

Energy and other supply
- Conversion, distribution and management of energy
- Comprehensive support for the implementation of water services

Mobility, transport and logistics
- Infrastructure, smart algorithms, integration with ICT
- Building blocks of digital mobility in smart community
- Business models, platforms, sharing economy, shared transport services

Security
- Next-generation operating systems for ensuring safety in cities and local communities
- Next-generation system for reciving and handling emergency calls
- Smart city control systems
- Operational-tactical security centre of tactical operational level

The quality of urban living
- Analytical platform for planning, monitoring and managing environment

Smart city ecosystem
- Open integration platform for connecting and developing more comprehensive solutions and common services

Smart buildings and homes, including wood chain

Wood and wood chain
- New wooden materials and composits to enable larger wood utilisation
- Materials and techniques to enable building construction that is environmentaly friendly, energy efficient and built to withstand earthquakes
- Wooden windows, doors and lining with improved functional properties and built-in sensorics for most demanding applications
- New business models with permanent planning of furniture user value
- Design and planning services to enable reuse and/or recycling of products

Smart devices
- New products in the field of cooling, ventilation, air conditioning, heat pumps and heat and cold storage, with the aim of higher efficiency and higher energy efficiency
- Systems for (co) production of electricity or fuels in/on buildings with a high degree of integration into the buildings' envelope
- Devices for treatment of drinking water, black water and rainwater to the extent which would enable water re-use
- A new generation of household and professional appliances and devices and systems with improved functionality and connectivity
- Advanced devices for interior, lighting and communication and user support deviceswith applying new technologies

Active management of buildings
- Ensuring component connectivity
- Active management systems with decision logic
- Adaptive self-learning device models
- Accessories for services systems and business models in the context of active building management

Advanced non-biogenic construction products
- Smart almost passive houses
- Advanced load-bearing construction ellements and systems
- Multifunctional elements and systems for building envelope
- Specialni zaščitni in zaključni materiali, elementi ter sistemi
- Materials, elements and systems for a better quality interior environment

Networks for the transition into circural economy

Sustainable energy
- Energy utilization of waste material flows (WtE)
- Optimizing energy and material efficiency
- External sources of energy
- New business models

Biomass and alternative raw materials
- Sustainable mobilisation of biomass
- Ligno-cellulose biorefinery for the isolation of extracts and polymeric building blocks of biomass
- Biorefinery for alternative raw materials

Secondary raw materials
- Processing of industrial and construction waste
- Processing biowaste into valuable products
- Circural economy of the material flow of electrical and electronic equipment waste
- Waterwaste treatment technologies and extraction of materials and energy from them

Functional materials
- Sustainable composits
- Advanced packaging/materials

Processes and technologies
- Bio-based green chemicals and packaging materials
- Processes for the production and processing of polymers
- Biotehnološko proizvedene spojine
- Improved production equipment with guidence
- Continuous production of compounds
- New production equipment with guidence

Circural business models
- Sustainable processes and networks

Sustainable food production

Raw materials and sustainable use of resources
- Quality management of raw materials
- Reducing environmental impacts
- Risk management
- Introduction of circular economy principles

Smart process planning and process control
- Strategic management of supply chains
- Optimization
- Automation and robotization
- Digitalisation

Advanced equipment and technologies for production and processing of food
- Agricultural production
- Manifacture of food products
- Storage and distribution
- Advanced materials

Hygiene, safety and food quality
- Hygiene and safety
- Quality
- Tracebility
- Legal and regulatory framework

Food, diet and the consumer
- Consumer behavior
- Consumer perception
- Food and health
- Food and tourism

Sustainable Tourism

Information support for marketing and networking
- Digital solutions in communicating with tourists
- Digitalisation of tourism products
- ICT for business optimization

Knowledge for enhancing the quality of services
- Internal quality service systems

Technological solutions for the sustainable use of resources in accommodation facilities
- Sustainable use of resources
- Waste management
- Technological solutions for e-mobility
- Technological solutions and security
- Technological solutions in smart buildings

Green Slovenian tourist scheme
- Management of natural assets and cultural heritage
- Development of innovative and sustainable supply and smart management
- Development of green and responsible tourism products

Factories of the Future

Robotic systems and components
- Building new robots
- Innovative Intelligent and Sensor-Supported Robotic Applications (advanced machine vision)
- Inteligentni senzorji in aktuatorji za potrebe robotike
- Development and marketing of flexible and cooperative robotic cells

Advanced photonic technologies and intelligent laser systems for factories and clinics of the future
- Special laser sources
- Intelligent Laser Systems for Digital Processing of materials
- Smart medical laser devices
- Next-generation optical fibers

(High-tech automated) smart plasma systems (for continuous production)
- Multi-component plasma system for continuous production of condensers and similar products
- Advanced sensors for real-time measurement of plasma processes
- Plasma reactor for rapid modification of surface properties of larger components

Advanced sensors
- Advanced micro and nano sensors for process control
- 3D sensor systems
- Smart nano / bio / kemo sensors in the environment, industry and medicine

Advanced materials
- Magnetic materials with a minimum quantity of rare earths
- Environmentally friendly materials for protective elements in electrical engineering and electronics
- Functional coatings

Intelligent management systems
- Smart actuators
- Distributed management systems and IoT
- Intelligent Production Management Systems (MES-MOM)
- Diagnostics, prognostics and self-maintenance of smart machines and processes
- Development of modern tools and building blocks for the management and control of systems and processes

Smart Mechatronic Tools
- Smart Mechatronic Tool as Final Product
- Linking simulation tools with manufacturing machines to optimize production processes
- Advanced production process and prototype technologies

Smart factories
- Optimal (individualized) comprehensive solutions for the implementation of smart factories

Health - Medicine

Translational medicine
- Central nervous system disorders
- Regenerative medicine
- Development of advanced medical products and new delivery systems
- Rare diseases

Active and healthy aging
- Smart medical devices and devices aimed at improving the quality and safety of the life older people

Resistant bacteria
- Antibacterial agents in materials

Biopharmacology
- Biopharmaceutical production
- Development of new biological medicines and vaccines

Natural medicines and cosmetics
- Medical products of plant origin
- Natural food supplements and cosmetics
- Development of medicines from cannabis

Treatment of cancer
- Development of new therapeutic approaches (genetic, proton and cell therapy)
- Personalized advanced therapy medicines

Mobility

Systems for e-mobility and energy storage
- Systems and devices for the main electrical drivers of vehicles
- Systems and devices for auxiliary electrical drives for vehicles
- Energy storage systems and devices and 'thermal management'

Niche components and systems for cleaner and more efficient internal combusition engines
- Advanced systems and devices for data capture
- Advanced drivers and actuators for environmentally-friendly internal combusition engines
- Advanced integrated components

Systems and components for safety and comfort
- Actuator systems
- Electronic and sensor systems
- Active-passive structural components

Advanced transport and logistics including business models
- Sharing economy
- Logistic optimization and transport management
- Business models for providing flexible personalized green mobility services

Advanced infrastructure
- Digitalized and integrated infrastructure
- Charging infrastructure

Introduction of advanced materials and technologies through the automation of production processes

Materials as end products

Steels and special alloys
- Ultra-pure steels and alloys
- High-strenght steels and their transformation
- Advanced metal materials for demanding applications

Aluminium
- New high-strenght and ultra-pure Al alloys
- Alternative manufacturing methods and maximum recycling of Al
- Die cast Al alloys

Technology
- Rapid prototyping and additive technologies
- Recycling (metallic materials, rare earths, composites, auxiliary materials, by-products)
- Advanced casting technology
- Modern technologies for processing polymers and hybrid materials

Multicomponent smart materials
- Multi-component smart fibers and textiles
- Composites

Functional coatings and advanced binders (for metals)
- Resins and binders
- Smole in veziva

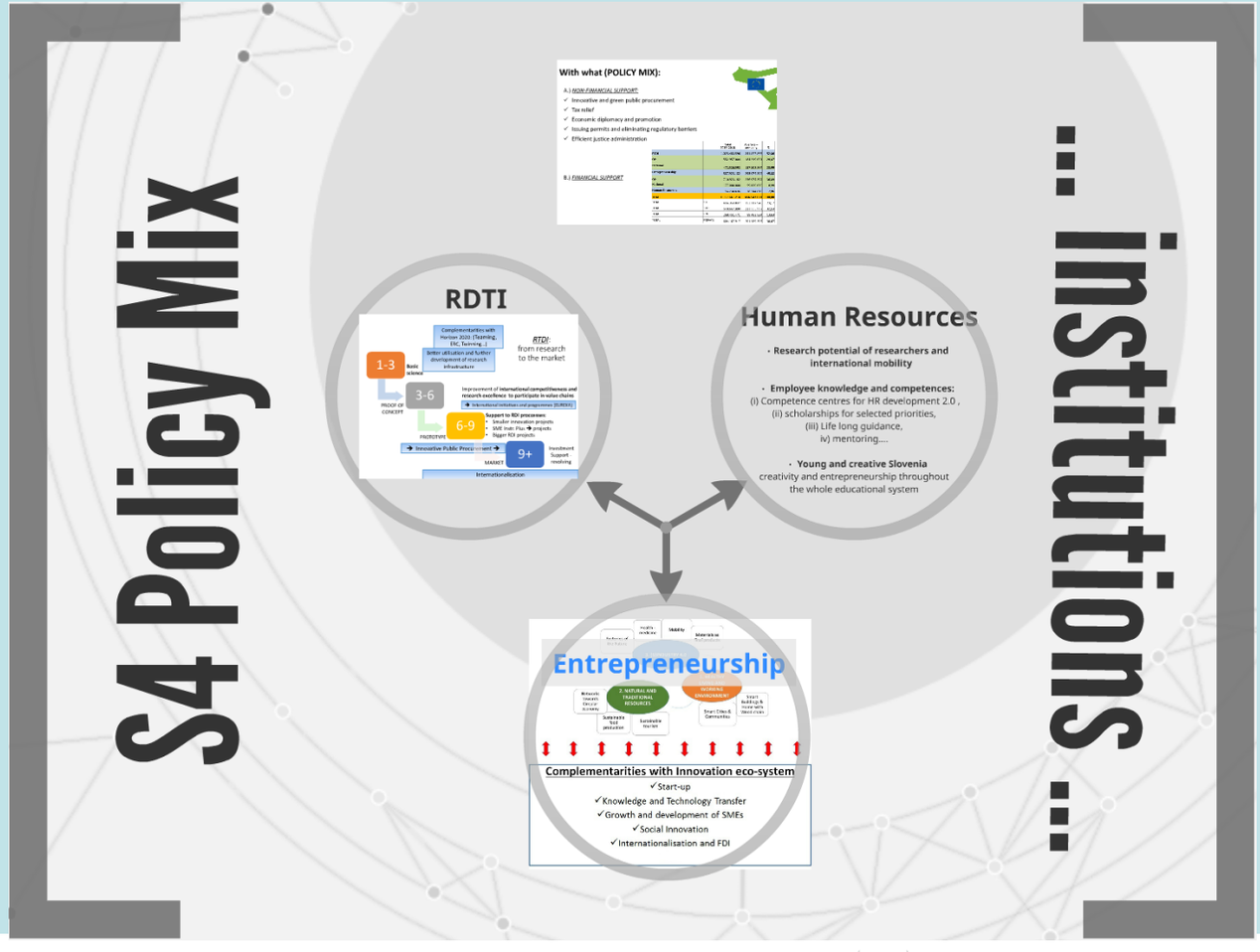
Energy Transitions/Industry 4.0/Adaption to Climate Changes Related Activities with regards to your MA Responsibilities I

- **Energy Transition is covered partially in Smart cities and communities value chain on smart grid and partially in Circular Economy value chain on sustainable energy. Climate Adaptation is dealt with under Industry 4.0 and Circular Economy pillars**
- Please highlight if there are research and innovation strategies for smart specialisation (RIS3) under TO1 aligned with mentioned areas. **Resolution on the National Research and Development Programme and the National Plan for Research Infrastructure underpinn energy and climat change in its vision statement. Following ESFRI pillars, a range of research infrastructures have been selected for funding such as INNORENEW. Slovenia takes part in ESFRI projects LifeWatch, EPOS, eLTER, CERN, CTA etc.**
- Please mention if there are other funding sources (than ESIF) financing projects in these mentioned areas. **National Budget, H2020 FP.**
- **All S4 priorities are supported by S3 – tailor made Strategic research and Innovation Partnerships - SRIPs, representing quadruple helix cooperation based on balanced governance regarding SME, large companies and public ROs following the principle of open membership.**

Energy Transitions/Industry 4.0/Adaption to Climate Changes Related Activities with regards to your MA Responsibilities II

- Please provide brief information on your countries'/regions' activities under other Thematic Objectives (than TO1) with regards to these areas (Energy Transitions, Climate Adaption, Industry 4.0 and Circular Economy). **Slovenia's S4 governance provides for robust system to streamline S4 priorities in other TOs, particularly TO3 and TO10.**

- Please share your ideas on the horizontal impacts of the investments taken place under different Thematic Objectives (if relevant). Particularly, do you think that investments under TO1 affect/reflect to other investments under different TOs (from TO2 up until TO11)?



European Commission

Activities Undertaken under the EIT KICs Networks and/or EIT Regional Innovation Scheme (EIT RIS)

- Please explain if organisations from your country/region are involved in projects of EIT Knowledge and Innovation Communities (if relevant).
  Slovene partners take part in KIC Raw Materials, Climate and Food.

- If not, please mention your ideas for future collaboration with EIT KICs (e.g. mobility schemes, fostering entrepreneurship, education programmes, research and innovation etc.).
  Slovene partners, SRIP members, are involved in pending KIC Manufacturing and will partner for application on open call for KIC Urban Mobility.

Critical Success Factors

- In line with the previous slides, please mention what the critical success factors are in order to achieve effective collaborations with EU bodies/schemes. **Public administration capacity to implement beyond state of the art solutions within infrastructure investments.**
- Please explain what are the long term expectations for mayor system change in your country/region regarding low carbon economy. **Improved capacity for Implementation of PPPs and Innovative public procurement to enable effective implementation of Pilot Project designed by S4 SRIP.**
- Do MAs need support on these areas; (1) the strategic planning/understanding (2) co-finance mechanisms and (3) procurement issues? Please briefly explain the type of support that can improve your performance. **The existing support mechanisms enhancing RIS Industrial modernisation platform are a good example of flexible and quickly adaptable measures on European level ranging from scoping exercises to financing protocols. In this respect we look forward to pending facility Industrial Modernisation Pilot.**