



SRIP KROŽNO
GOSPODARSTVO



REPUBLIKA SLOVENIJA
MINISTRSTVO ZA GOSPODARSKI
RAZVOJ IN TEHNOLOGIJO



EVROPSKA UNIJA
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STRATEGIC RESEARCH AND INNOVATIVE PARTNERSHIP – NETWORK FOR THE TRANSITION TO CIRCULAR ECONOMY

**Key focus SRIP – STRATEGIC RESEARCH AND INNOVATIVE
PARTNERSHIP
(Action Plan summary)**

Maribor, June 21, 2017
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Key focus SRIP – STRATEGIC RESEARCH AND INNOVATIVE PARTNERSHIP (Action Plan summary)

1.) Key goals SRIP

- Key goal 1: Connect different stakeholders, business subjects, educational and research institutions (RRI), non-governmental organizations and others interested into value chains of interconnected material flows and new business models.
- Key goal 2: Contribute to the betterment of the material efficiency index / productivity improvement from 1.07 (year 2011) to 1.50 (2020).
- Key goal 3: Contribute to the increased share of high technology products and services with a high degree of knowledge on global markets.
- Key goal 4: Contribute to the increased added value per employee.
- Key goal 5: Contribute to increased entrepreneurial activity from its current 11% rate to match the EU average of 12.8%.

2.) Key global indicators

The main changes that are entailed in the SRIP (Strategic research and innovative partnership) are directed to realize the global goals according to focus fields S4. These are important to the SRIP partners, companies and institutions who participate and which connect in vertical / value chains under the principles of openness and relative balance in management to achieve developments in breakthrough fields as well as products and services. The goal is also to develop new business models that take into account the digitalization, horizontal IT-networks support, internationalization and the development of human resources and common services.

Key global indicators which point to key global goals – SRIP

Key global indicators	Year 2017	Year 2018	Year 2022
1. No. of established value chains in breakthrough technological fields	0	5	5
2. No. of export oriented new high technology intensive products and services	0	8	36
3. No. of participating companies	42	52	62
4. No. of new product categories / companies	0	5	10
5. Annual range of investment into R&D ¹	€3 billion	€3.1 billion	€3.4 billion

¹ Because this data is not public we evaluated it based on gathered internal R&D data, on the 2-digit SKD service number codes (2008-2015, Statistical office of Slovenia) and calculations of their share of added value user interfaces (ui) for the whole period (average). This share was then replicated on the SRIP companies based on added value criteria. More the 80% of all expenditures for R&D in SRIP came from pharmaceutical raw materials. It is important to note here that the data regarding R&D is only published every two years.

Additional input data for SRIP – Circular economy

Input data – economy, members of SRIP	Initial state, year 2016 (2015) ²	Year 2018	Year 2022
No. of employees ³	12,400	12,700	13,600
No. of researchers ⁴	848	852	860
Annual R&D investment volume ⁵	€90 million	€92 million	€100 million
Annual investment in infrastructure and equipment ⁶	€167 million	€175 million	€192 million
Export volume ⁷	€3 billion	€3.1 billion	€3.4 billion

3.) SRIP strategy

The main reason for a transition into the circular economy is the recognition that the basis of a more competitive economy stems from sustainable use and production, green growth and low-carbon economy, effective use of resources, and the knowledge that the endless growth of consumerism and business leads to the depletion of natural resources and therefore a rise in their price. Therefore it is imperative to transform the economic system from a linear to a circular base. The concept of waste needs to be abandoned and a long circulation of products in use has to be achieved with the goal of clean and unpolluted materials that are readily available and capable of extensive reuse. The strategy of SRIP (Strategic research and innovative partnership) takes into account that the transition from a linear economy to a circular one brings new challenges and opportunities for the transformation of our economy and with it sustainable competitive

² Dependent on data availability. Data for 2017 does not exist.

³ Only for business subjects, Based on work hours (Ajpes methodology).

⁴ Only for business subjects. Not a key data point. The number of available researchers does not correlate to better projects; also problematic is the quantitative assessment because not all researchers at research institutions work in the field of circular economy. There is also the possibility that the institutions could hire external researchers if they lacked qualified personal.

⁵ Because this data is not public we evaluated it based on gathered internal R&D data, on the 2-digit SKD services number codes (2008-2015, Statistical office of Slovenia) and calculations of their share on added value user interfaces (ui) for the whole period (average). This share was then replicated on the SRIP companies based on added value criteria. More the 80% of all expenditures for R&D in SRIP came from pharmaceutical raw materials. It is important to note here that the data regarding R&D is only published every two years.

⁶ Incorporates the volume of investment into basic funds, infrastructural construction projects, machines and equipment as intangible assets / funds. It is also important to point out that the data on investments is only published following a two year delay. The volume of investment is also dependent on co financing from state sponsored public tenders, other international programs and co investments by single companies.

⁷ Data is viable only for business subjects. Other institutions (Institutes, Foundations, cooperating Universities) basically do not export or at least not in this form or degree. Export sales data for foreign markets is not publically available for these subjects.

advantages on a European and global scale. SRIP focuses on technologies in the fields of biomass processing and the development of new bio-materials, the use of secondary raw materials, the reuse of waste materials as well as energy production from alternative sources. For this purpose vertical / value chains are implemented where representatives of businesses and research institutions will cooperate in developing new technological fields and product directions that should allow for the development of new high technology products and services with the goal of high material efficiency / productivity for breakthrough adoption / establishment in European and international markets.

Global competitive advantages are shown as follows in:

- the development of bio-economy and breakthrough technologies, directions, innovative products and services with the goal of optimal and sustainable use of available local biomass sources and alternative raw materials.
- the field of secondary raw materials does not offer any direct comparative advantages, but it is imperative for companies in this field to achieve the highest possible productivity per employee, one that exceeds the Slovenian average. There are signs of secondary raw material use in construction, tire production, agriculture, metallurgy and the foods and beverages industry.
- the field of sustainable energy, where we have a lot of companies with potential which already cooperate with research institutions and work on a global market. That is why these will achieve an added value in the SRIP with integrated systems that enable additional value in products and services.
- the global dimension of SRIP members: cooperation in a public private partnership based on the technological platform BioBased Industries; international projects (Horizon 2020, Interreg and other development projects, BERST, Poly4Eml), cooperation with the Vanguard Initiative and the European Institute of Innovation and Technology.
- the number of small, medium and large companies, all members of SRIP with professional staff capable of cooperation with research institutions and with international experience.

Critical mass of competence and capacity

1. SRIP members, most of whom are structurally diversified business subjects, in connection with research institutions of high intensity, especially in the private sector, form the critical mass of core competencies, appropriate professional know-how and experience, as well as references to the goals of SRIP in the focus fields S4. Specifically the technological areas and products within the five value chains have the goal of developing high technology products and services for European and global markets.
2. The SRIP members, which include research and educational institutions as well as private subjects, show sufficient human resources and infrastructure with intention for co-use. These capabilities should increase with the development of new research projects and potential investments into capacity as well as the innovative potential from new and existing members of SRIP coming out of the broader economy.
3. The increasing interconnection between business subjects, who have the capacity for utilization of complementary synergy and can offer innovative and cheaper solutions

in the SRIP value chains, together with research institutions, should lead to increased research in the fields of eco-design, innovation, trade and marketing.

4. Some SRIP members are already successfully established in international value chains and networks through export activity and the cooperation in different EU projects. This represents additional value for SRIP in the form of networking and a common representation of our interests in the international space.
5. The openness, education, knowledge of foreign languages and creativity of the people in the companies forming SRIP including research institutions from the vantage point of research papers and cooperation with business are also one of the key elements of a successful and international SRIP operational orientation. The members are already aware of the need for structural change connected to cooperation in the transition to a circular and green economy, the development of a supportive climate for business growth, knowledge and technology transfer from research institutions to business, social and technological innovation accounting for sustainable processes and life cycle.
 - Number of currently participating companies: 42 small, medium and large companies.
 - Number of currently participating research and educational institutions: 16, with a pool of more than 3000 researchers.

4.) Fields of focus with defined actions of common development

a) Description of the field of focus

The SRIP – Strategic research and innovative partnership will implement activities of common development in line with the focus fields S4 for the transition into a circular economy. These activities center on technologies for the processing of biomass and the development of new biomaterials, technologies for the use of secondary raw materials and the reuse of waste as well as energy acquisition from alternative sources. In these fields of focus, verticals / value chains were formed that concentrate on breakthrough and export-oriented technological fields and product directions. As a whole these form a new business model of a transition into a circular economy. The support for these value chains and product directions also comes from the horizontal network of IT and internationalization support, as well as the development of human resources and common services.

i. Key goals

The key goal of SRIP lies within the development of breakthrough technological fields, product directions, high-tech products and services in the value chains for the penetration of global markets while at the same time bolstering human resources, innovation and entrepreneurship, transfer of knowledge and technologies between the business subjects and the SRIP members, with the potential for investments capabilities that work inside the focus fields S4.

ii. Fields of focus and fields of common development

Fields of focus and fields of common development include the development and use of advanced technologies (production and processing), the establishment of optimal industrial processes for the production of high quality products with the goal of lowering raw material use, especially non-renewable fossil based. The goal is to transition to renewable energy / raw material sources with little unused waste.

This common development stems from the fields of focus and technological fields, product directions along the separate value chains that focus on the development of quality high technology products and services with the intersection of these value chains and the development of new business models. The common development in the technological fields is the result of interest on the side of the cooperating business partners, especially business subjects and research institutions with a niche oriented focus, taking into account the investment potential of untapped Slovenian competitive advantages.

- 1) The focus field **sustainable energy** is centered on the energy usage of waste material flows (WtE), the optimization of energetic and material efficiency, external energy sources and new business models for the development of breakthrough products and services with a large potential for growth.
- 2) The focus field **Biomass and alternative raw materials** is centered on the sustainable mobilization of biomass, lingo-cellulose, bio-refineries for the isolation of polymer biomass building block, extracts and bio-refineries that produce alternative raw materials for the developments of innovative (bio)products.
- 3) The focus field of **secondary raw materials** centers on the processing of industrial and construction waste, processing of biological waste into value products, the circular economy of material flow for electronic waste and the technology for the treatment of waste water as well as acquisition of energy from these sources.
- 4) The focus field of **functional materials** centers on sustainable composites and advanced packing / materials.
- 5) The focus field of **processes and technology** centers around bio-based green chemicals and materials, production processes and polymer processing, biotechnological compounds, the continued production of compounds and new production equipment with management.
- 6) The focus field of **circular business models** centers on sustainable networks and processes. It should lead to the development of an open computer platform with the goal to bring about a framework for higher technological and economic as well as environmental efficiency of technology, processes and companies. It should allow for sustainable long term development within the whole life cycle.

The added value of the joint development is IT support, internationalization, the development of human resources and common services all which add to the efficiency and productivity of the value chains and SRIP as a whole. For the need of joint development the activities and communications as well as activities referring to dissemination will be run to ensure efficiency and high quality as well as internationally acclaimed visibility of SRIP – Strategic research and innovative partnership in business, environment and social fields (realms). For the common / joint development of the SRIP (Strategic research and innovative partnership), cooperation with the government is crucial for the promotion of a green – circular – economy. This includes all relevant governmental ministries, first and foremost the MGRT (Ministry of Economic Development and Technology), which co-finances SRIP and SVRK (Government Office for Development and European Cohesion Policy) taking into account all the necessary regulation (directives, regulative, laws, green tenders etc.) in the planned development



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of the individual value chains as well as, if necessary, the cooperation with other strategic partnerships.