



REPUBLIKA SLOVENIJA
**MINISTRSTVO ZA GOSPODARSKI
RAZVOJ IN TEHNOLOGIJO**



EVROPSKA UNIJA
EVROPSKI SKLAD ZA
REGIONALNI RAZVOJ
NALOŽBA V VAŠO PRIHODNOST

KEY GUIDLINES

STRATEGIC DEVELOPMENT INOVATION PARTNERSHIP IN THE FIELD OF
MOBILITY

SRIP ACS+



June 2017

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1. KEY OBJECTIVES

In reflection of SRIP's key objectives, it is necessary to highlight the organizational and developmental aspects of SRIP as a support institution, as well as that of individual members and the partnership as a whole.

Key objectives of SRIP ACS+ as support institutions:

- Establishment of creative and encouraging environment for all members and the wider public.
- Identification of key and important changes in mobility development strategies in order to effectively adapt the development strategies of SRIP members.
- Implementation of activities that support the needs of members during their development.
- Continuous upgrading and customization of SRIP office services to the needs of members.
- Provision of excellent support to the EDISON partnership in the enforcement of Slovenia as a reference state in the field of green mobility.

Key objectives of the members and the SRIP ACS+ partnership as a whole:

- Establishment and upgrading of a networking culture and a culture of open innovation among partners.
- Transition from the development of individual components and materials to the development of more demanding and more complex energy-efficient products with higher added value.
- Strengthening the status of Slovenian producers as pre-development suppliers.
- Increasing the added value of companies by 20%.

2. KEY GLOBAL INDICATORS

SRIP ACS+ indicators are presented in detail in the Action Plan. Added indicators are linked to global S4 objectives. Indicator details are presented in Action Plan V.2.

Quantified indicators relevant to SRIP ACS+ partnership objectives:

Indicator	Expected value 2018	Expected value 2022
Number of new joint development projects (value chains)	30	100
Number of patent applications	0	10
Number of professional publications	5	20
Number of important innovations	10	50
Number of nominations for OEM or Tier 1 producers	3	10
Established international partnerships	1	10
Investments in process automation	0	5

Global SRIP ACS+ indicators:

Indicator	Expected value 2018	Expected value 2022
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Number of included companies (increase of 5%)	85	90
Number of employees (increase of 8%)	26.000	27.000
Total revenue in EUR (increase of 20%)	7.500.000.000	9.000.000.000
Value added / employee in EUR (increase of 20%)	57.000	68.000
Share of member export (increase of 5%)	45%	48 %

The number of researchers in automotive industry companies is roughly 5% of all employees, it is necessary to define a meaningful classification methodology for jobs that fall within the field of development in order to more accurately assess their value. According to known data, investment in development is between 3% and 5%, with a greater share of total realization in larger investments. However, it is necessary to define a methodology or criteria for the assessment of value. A very wide range of investments may be understood as development investments: the work of researchers who develop new products and technologies, the work of employees who do not have researcher status but develop new business models, the work of technologists who also lack researcher status but develop new technological processes. Also considered are investments in research and development equipment, and in new technologies, which require additional education and thus the development of knowledge, and of course, the cost of cooperation with public research institutions, private research and development partners and cooperation with partners in the field of joint development.

3. STRATEGY

*Due to its geographical location and size, Slovenia is positioned to become a **Green Mobility reference state** and a leader in the demonstration and transfer of green mobility technologies to the market.*

Many suppliers of components to the automotive industry are already well-established in the global market. With the development of technologies and digitization in the field of mobility they will **define fields of focus, with increased competencies in niche areas strengthening their leadership positions.**

As stated in the SRIP ACS+ Action Plan, partners will focus on products (technologies, systems, components, algorithms and business models), for which we have identified a sufficient concentration of competencies and capacities, and for which we recognize market potential and predict market growth. Our focus also takes into account niche areas with higher added value, areas where we have or will in the near future build competent value chains, and areas where these chains can offer breakthrough solutions.

Niche focal areas of mobility, for which we have more precisely defined the focus in product lines:

- 1) Technologies to **optimize the operation of electric propulsion systems**, with focus on the development of excellent competences for the development of smart components and systems for electric propulsion systems.
- 2) Technologies to **reduce the emissions of internal combustion engines** by focusing on smart solutions for the reduction of emissions and reduction of component weight.

- 3) Technologies and solutions for **reducing the weight of components and increasing the quality of their processing**, focused on the introduction of lighter materials, the technologies of joining different materials and construction optimization.
- 4) Technologies to **increase the efficiency of logistic processes** by focusing on the optimization of internal logistics and the development of comprehensive models for the delivery of goods (single window).
- 5) **The development of new business models** in the field of mobility by focusing on solutions that are directly linked to the vehicle as an integral part of the IoT and IoS solutions.
- 6) Technologies to **establish an efficient infrastructure for electrification of mobility**, with focus on the efficient connection of a vehicle to infrastructure.

With an interdisciplinary emphasis, linking different stakeholders to the intensive development of new knowledge, joint investment in development capacities and establishing a strong international partnership, we will create an environment that enables companies to move from Tier 3 to Tier 2 and from Tier 2 to Tier 1 in the global supply chain. This will comprehensively raise the level of competence, as well as the added value of Slovenian companies.

Capacities in the field of mobility are merged in SRIP ACS+ through the Economic Interest Association of the Slovenian Automobile Cluster and the Association for Traffic at the Chamber of Commerce and Industry of Slovenia. As of 1.6.2017 there are 84 members, of which 29 (34%) are large companies, 21 medium and 26 small and micro enterprises, i.e. 56% small and medium enterprises and 8 (10%) public research organizations. Small and medium sized enterprises therefore represent a large part of the membership, and are included in all focus areas.

4. FOCAL AREAS DEFINED AS ACTIVITIES OF COMMON DEVELOPMENT

Areas of focus:

(product lines are defined in the Action Plan, while further focus is evident from the set of research and development projects conducted by the partners)

SYSTEMS FOR E-MOBILITY AND ENERGY STORAGE

DESCRIPTION OF THE FOCUS AREA: The focal area covers comprehensive development of electrical machines, their components and electronic guidance systems. We will strengthen our presence in existing markets and win new niches, as new trends in e-mobility and energy storage enable rapid growth. Further focus will be directed toward the development of systems and devices for 1) the main electric drives of vehicles, 2) the auxiliary electrical drives of vehicles, as well as 3) energy storage and thermal management.

KEY OBJECTIVES OF THE FOCUS AREA: We will upgrade existing competencies and develop new ones for the development of safe and energy efficient components, with which we will achieve significant market

shares in Europe and globally. The objectives will be measured by the number of nominations for new supplies and patents, and by the joint development projects of the partners.

AREAS OF COMMON DEVELOPMENT: Joint development will be directed to the deployment of adequate education in the field of state-of-the-art semiconductor technologies, design approaches, electromagnetic compatibility, as well as management systems and development processes. The partners also show strong interest in networking the development and testing of new solutions, which is expected to lead to the **establishment of a joint laboratory - a common test site** for the development of electric motors. Additionally, the field of thermoregulation is very important, with additional emphasis on the thermoregulation of battery assemblies, for which the establishment of a new test facility is expected.

NICHE COMPONENTS AND SYSTEMS FOR CLEANER AND MORE EFFICIENT INTERNAL COMBUSTION ENGINES

DESCRIPTION OF THE FOCUS AREA: The focal area covers the comprehensive development of competences for the development of niche products, particularly to ensure a reduction of CO₂ and other harmful emissions from internal combustion engines. Further focus will be directed to the development of 1) advanced data acquisition systems and devices, 2) advanced drives and actuators for environmentally friendly internal combustion engines, and 3) advanced integrated components.

KEY OBJECTIVES OF THE FOCUS AREA: In the field of focus, we will capture new niches and increase market shares with the development of breakthrough solutions. The objectives will be measured by the number of new nominations and innovations and by the joint development projects of the partners.

AREAS OF JOINT DEVELOPMENT: With additional focus on key competences and knowledge in the focal area, along with internal education and more efficient exploitation of the synergistic effects of virtual product development, we will establish an advanced and flexible test facility for more efficient support of the development and validation of breakthrough products that will be compatible with the testing center for the thermoregulation of systems and components of electric and hybrid vehicles, which is key to the integrated support of development of optimal products.

SYSTEMS AND COMPONENTS FOR SAFETY AND COMFORT

DESCRIPTION OF THE FOCUS AREA: The focal area is directed toward the development of advanced electronic, mechanical and mechatronic components of active and passive systems that improve or upgrade existing systems, and to providing completely new safety and comfort features. Further focus will be directed to the development of 1) actuator systems, 2) electronic and sensor systems, and 3) active-passive structural components.

KEY OBJECTIVES OF THE FOCUS AREA: The objective of the partners is to further differentiate against the competition in terms of niche solution development, related systems and price competitiveness. The objectives will be measured by the number of new nominations and innovative solutions and by the joint development projects of the partners.

AREAS OF JOINT DEVELOPMENT: A key common area among the partners will be the development of innovative algorithms (tools) for use in the development phase, which will enable faster and hence

cheaper development and introduction of Industry 4.0 elements of in the field of development with emphasis on the digitization of development processes.

ADVANCED TRANSPORT AND LOGISTICS INCLUDING BUSINESS MODELS

DESCRIPTION OF THE FOCUS AREA: The focus area strongly connects contractors of logistics services (automotive industry), logistic service providers and companies that develop information and technology solutions in the field of logistics. Further focus will be directed toward the development of competencies for the development of comprehensive advanced solutions and business models for 1) the data-driven cooperative economy, 2) fleet management, optimization of logistic systems as well as business and technological solutions that will be integrated into mobility and logistics systems (cars, freight transport, warehouses, production, parking lots, etc.).

KEY OBJECTIVES OF THE FOCUS AREA: The key objective is to improve the competitive advantages of the automotive industry and the entire logistics industry. Objectives will be measured by the number of new nominations, added value per employee by providers of logistics (and transport) services and their users, and by the joint development projects of the partners (global indicator).

AREAS OF JOINT DEVELOPMENT: Interdisciplinary and interinstitutional cooperation between stakeholders and experts will be of key importance to the development of **technological or business innovations** such as: the components of business model platforms, the integration of infrastructural data sources, electric vehicles as a service platform, the comprehensive management of logistics (and transport) using cloud solutions, robotics and automation, the predictive analytics of telemetry data, the use of block sequencing technology (e.g. tracking), the management of autonomous fleets with the help of cognitive intelligence, a business model for the use of (partly) autonomous vehicles, and the development of new logistical services based on this.

ADVANCED INFRASTRUCTURE

DESCRIPTION OF THE FOCUS AREA: With a holistic approach and an understanding of the needs of new models and mobility technologies, we will establish an infrastructure that enables connectivity, smooth mobility and adaptability to the electrification and digitalisation of traffic. Further focus will be directed toward 1) digitized and integrated infrastructure, and 2) the charging infrastructure.

KEY OBJECTIVES OF THE FOCUS AREA: The partners will develop models and solutions to help them adapt to upcoming changes. The achievement of objectives will be measured by the number of joint development projects and the establishment of international partnerships in the field.

AREAS OF JOINT DEVELOPMENT: A key aspect will be the connection of infrastructure managers (roads, electricity) to companies that develop IT and GIS technologies, logistics services, measurement technology, the production of new materials and, last but not least, the automotive industry. The establishment of new connections and partnerships in the fields of construction, maintenance and management, will enable the efficient introduction of electric and autonomous mobility. To facilitate this it will be necessary to create public-private partnerships with different stakeholders in the consortium and beyond (energy companies, public transport, utilities, DARS, DRSI, municipalities, etc.), as well as the participation of users, operators and providers of logistics services.

INTRODUCTION OF ADVANCED MATERIALS AND TECHNOLOGIES FOR ACHIEVING GREATER COMPETITIVENESS

DESCRIPTION OF THE FOCUS AREA: Electrification and the requirements of reducing harmful emissions require manufacturers to continually reduce the weight of components, and due to the high price performance requirements, it is necessary to intensively introduce Industry 4.0 solutions into the production and business processes of the partnership members.

KEY OBJECTIVES OF THE FOCUS AREA: The objectives of the field are to introduce **at least 5 pilot examples of advanced automation of production processes** with partners, and to **develop lighter and optimally constructed components**, which will be measured by the number of investments in new production lines and the joint development projects of the partners.

AREAS OF JOINT DEVELOPMENT: The partners will establish a **joint development center in the field of advanced 3D printing**, thus solving two challenges: the introduction of new technologies into production processes, and faster optimized prototyping in the process of new product development.