

## THE ROLE OF SMART SPECIALISATION STRATEGY IN ECONOMIC RECOVERY AND SUSTAINABLE DEVELOPMENT IN THE POST COVID-19 ERA

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**Abstract:** *Smart specialisation is an innovation policy concept which aims to develop competitive advantages of regions/countries based on their innovation potential and applying evidence-based analysis. The objective of this paper is to analyse the potential of smart specialisation strategies (S3) to support economic recovery after the crisis caused by the Covid-19 pandemic and support sustainability imposed as one of the most important pillars of the new EU growth strategy. The results of the conducted analysis indicate that: 1) smart specialisation strategies are economic transformation agendas based on identifying key national/regional priorities, 2) selection of S3 priorities is based on the analysis of innovative, scientific and economic potential as well as relevant societal challenges, 3) S3 is highly accepted approach not only in the EU and enlargement countries, but also worldwide, 4) S3 is an effective tool for the economic recovery after the Covid-19 crisis and achieving sustainable development goals.*

**Keywords:** *Smart Specialisation strategy (S3), economic recovery, sustainability, sustainable development, Covid-19.*

### 1. INTRODUCTION

Smart specialisation is a unique innovation policy experiment launched by the European Commission in 2010. It relies on the idea that each region or country has distinct characteristics, knowledge base and capacities which can be the source of their competitive advantage if the efforts are concentrated on a limited number of economic activities. Therefore, the goal is to link research & innovation potential and economic development by setting priorities with close involvement of various relevant stakeholders.

Smart specialisation strategies have a vital role in stimulating R&I and industrial transition of regions and countries. They are also an effective tool to help territories recover from the current pandemic-induced crisis. Moreover, S3 is recognised as a concept which can be successfully aligned with the European Green Deal and UN 2030 Agenda. The current development of S3 approach is based on introducing sustainability elements in its core phases.

This paper is organized as follows. Section 2 introduces the concept an origins of the smart specialisation strategy. The third section describes application of S3 approach in the EU and worldwide with emphasis on the Republic of Serbia as an example of a non-EU country involved in RIS3 design and implementation. The fourth section examines the potential of S3 in developing economic recovery paths after the economic crisis caused by the Covid-19 pandemic. Section 5 describes the need and possibilities for transformation from S3 to Smart Specialisation strategies for sustainability (S4). Finally, Section 6 presents main conclusions.

### 2. THE ORIGINS AND CONCEPT OF SMART SPECIALISATION

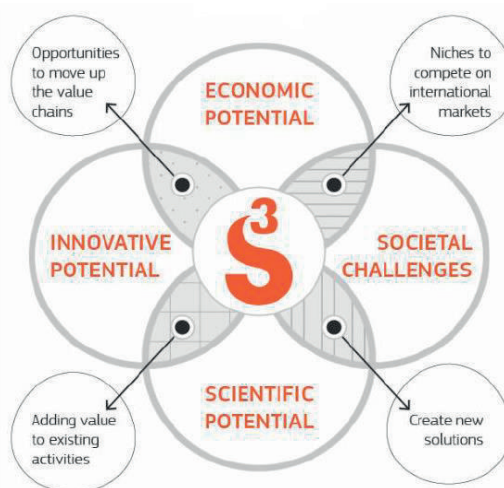
Over the last decade the Research and Innovation Strategy for Smart Specialisation (RIS3) has been considered as a policy framework which plays a central role in supporting innovative activities of regions and countries. The smart specialisation approach is incorporated in European Cohesion Policy and represents a precondition for receiving financial support from the European Structural and Investment Funds (ESIF).

The term “smart specialisation“ was formulated within the “Knowledge for Growth” expert group established by the former European Commissioner for Research, Janez Potočnik. In the context of the need to revitalise the Lisbon Strategy, in 2005 was established a group of prominent economists in order to provide him with high-level advice related to: contribution of knowledge to growth and prosperity; policy mix needed to promote creation, dissemination and use of knowledge and role of different actors in stimulating knowledge society [1]. Initially, the term was related to the need of concentration and specialisation of research and innovation with the aim to enhance entrepreneurial and innovation processes [2]. The concept of smart specialisation was first introduced in a policy brief prepared by Foray and Van Ark, as members of "Knowledge for Growth" expert group. The policy brief was published in 2007 and was devoted to developing the strategies

for attracting more R&D investments to Europe. The main conclusion was that there is a need to move towards the R&D system based on greater European-wide specialisation and that the European Research Area will only benefit those countries and regions that have clear visions and strategies as to how they can develop distinctive, original, modern areas of specialisation for the future [3].

The concept was further developed in 2009 within the expert group “Knowledge for growth“ with the aim to promote development strategies focused on investments in programs that complement existing production capacities and create future comparative advantages. It was clearly pointed out that the idea of smart specialisation approach does not include imposing top-down industrial policy or a foresight exercise, it is based on the entrepreneurial discovery process which reveals research and innovation areas in which certain country or region is likely to excel in the future [4].

The Guide for RIS3 was published in 2012 in order to offer the policy-makers and implementing bodies “methodological guidance on how to prepare for and how to design, draft and implement a national/regional research and innovation strategy for smart specialisation“ [5]. In this Guide, RIS3 is considered as a transformation agenda which brings to: 1) focusing policy support on key national/regional priorities and needs for knowledge-based development, 2) building competitive advantages of the country/region, 3) supporting technological and practice-based innovation with the aim to stimulate private sector investment, 4) full involvement of stakeholders, 5) evidence-based policy making with sound monitoring and evaluation system [5]. Therefore, smart specialisation strategies enable upgrading economic structure of countries and regions on the basis of their existing research and innovation potential. The focus is on development of competitive advantages on the basis of identified innovation niches. Therefore, smart specialisation approach includes unification of economic, innovative and scientific potential of a country/region with the aim to address societal challenges as well (Figure1).



**Figure 1:** Smart specialisation concept (Source: [6])

According to the official RIS3 guide, there are six steps in smart specialisation strategy development: regional analysis, governance structure, shared vision about the future, priority setting, policy mix and monitoring and evaluation mechanisms [5]. Although the S3 is often considered as a bottom-up approach, its authors describe it as a combination of two policy logics – a planning logic and a self-discovery logic [7]. In other words, the S3 approach is initiated and implemented on the basis of strategic decisions, but the process is marked with the interactions and initiatives of the actors participating in the strategy design, implementation, monitoring and evaluation.

### 3. INTERNATIONAL EXPERIENCES IN RIS3 IMPLEMENTATION

RIS3 as a place-based approach to innovation has initiated the development of more than 100 smart specialisation strategies in EU countries and regions. In total, 19 EU member states and 7 non-EU countries as well as 180 EU and 42 non-EU regions have registered to the S3 Platform of the Joint Research Centre [8]. The platform is specialised in offering advice to the countries and regions in RIS3 design and implementation. It also provides support in inter-territorial cooperation by supporting S3 thematic platforms and EU macro-regional strategies. The platform includes different mapping tools such as Eye@RIS3, Digital Innovation Hub

and Regional Benchmarking. These tools enable identification of specialisation domains for regions and countries and therefore foster collaboration among various actors in Europe.

In recent years, there has been a growing interest to implement smart specialisation approach in transforming innovation policies. The S3 has started to inspire different countries and regions belonging to the EU Enlargement policy, the EU Neighbourhood Policy and more widely, Australia, Brazil, Chile, Colombia, Mexico, Norway, Peru, China, Thailand, the United States of America, Canada and Africa, among others [6]. Therefore, the policy makers outside of the European continent have recognised the added value of the S3 approach in fostering economic transformation and building regional innovation ecosystems.

### 3.1. RIS3 in the Republic of Serbia

Building on the experiences of the EU countries, since 2016, the Joint Research Centre has been working with the countries under the EU Enlargement and Neighbourhood policy in order to provide support in development of smart specialisation strategies.

The Smart Specialisation process in Serbia started in 2017. It was initiated by the Ministry of Education, Science and Technological Development taking charge of the coordination of the process by establishing an Inter-ministerial working group for the development of the RIS3. The process was conducted with strong support of the JRC and in accordance with the „Smart specialisation framework for Enlargement and Neighbourhood countries“<sup>1</sup>.

The process of RIS3 design in Serbia started with a detailed quantitative analysis which included mapping of economic, innovation and research potential of the Republic of Serbia. On the basis of the identified areas within the framework of the quantitative analysis, in December 2017, an ICT Innovation Camp (software engineering) was held. In 2018, after a series of interviews with relevant stakeholders, a Qualitative Analysis was conducted, which identified potential priorities - areas with competitive advantage. In March 2019, the entrepreneurial discovery process (EDP) began and lasted until June 2019. During this period, 17 workshops were held, divided in three thematic areas: 1) SWOT (identification of strengths, weaknesses, opportunities and threats within the priority areas), 2) Vision (defining the priority area vision and defining the objectives to be achieved in the next 3-5 years), 3) Policy mix (selecting measures and activities for achieving of the identified objectives) [9].

Smart Specialisation Strategy of the Republic of Serbia (4S) was adopted in February 2020. On the basis of the quantitative and qualitative analyses, as well as EDP, the following priority areas in the Republic of Serbia are selected: Food for future, ICT, Future machines and manufacturing systems, Creative industries. The 4S is followed by the Action plan for the implementation of the Smart Specialisation Strategy in the Republic of Serbia for period 2021-2022.

Serbia is one of the first countries that has identified complementarities between RIS3 and sustainable development goals (SDGs). It is one of five countries in the Global Pilot Programme on STI for SDGs Roadmaps for SDGs from the United Nation's Inter-Agency Task Team on STI for the SDGs. The JRC has supported Serbia in this programme in developing a pilot methodology on adapting S3 to better contribute to SDGs.

## 4. RIS3 AND ECONOMIC RECOVERY AFTER COVID-19 PANDEMIC

The Covid-19 pandemic has created challenges for the health systems and citizen well-being, but also for economic activity on a global level. The spread of the coronavirus and the measures undertaken to protect population have caused different shocks on the supply and demand sides of the economic systems and therefore caused global economic crisis.

The crisis has also caused significant changes in research and innovation activity and its policies. Factors shaping the future of research and innovation are related to the uneven effect of the crisis across different R&D sectors, increased application of digital technologies and artificial intelligence, development of new forms of cooperation related to open science, transnational collaboration and public-private partnerships.

Although R&D expenditures are quite procyclical, the pandemic crisis did not affect decline in total R&D investment. On the contrary, research and innovation have become the central part of the policy response to the crisis. According to the OECD data, the OECD economies have increased investment in R&D in 2020 despite the strong decrease of the economic activities. The R&D expenditure in the OECD area grew by 1.8% in real terms in 2020. The growth of R&D investment in the OECD area in 2020 was primarily driven by growth in the United States at 5%, in contrast with R&D expenditures in Germany and Japan, which declined

<sup>1</sup> Elaborated in: Matusiak M. & Kleibrink A. (ed.) (2018). Supporting an Innovation Agenda for the Western Balkans: Tools and Methodologies, Publications Office of the European Union, Luxembourg (Annex 1).

at -5.3% and -2.7% respectively. In the EU27 area, business R&D performance was the main source of the aggregate fall in R&D. The reason for the low performance of the EU lies in the structure of its business R&D. During the crisis, the largest business R&D investments were in ICT and pharmaceutical industry, while automotive, aerospace and other industries have experienced large decline [10].

The academic literature recognises the following two stages in the response to the economic crisis caused by the pandemic: 1) resistance stage focused on macroeconomic and regulatory policies and 2) reconstruction and renewal stage which includes design of proactive policies to build resilience of the regions [11]. The research and innovation and its related policies, especially smart specialisation are beneficial for both phases since they offer support in the recovery of production process and value chains as well as in economic transformation in accordance with the regional advantages. Moreover, by focusing on a place-based approach (i.e. regional specificities and needs), smart specialisation strategies can provide more targeted support to the socioeconomic recovery. Although the pandemic has caused global economic decline, the scope of the crisis depends on the structure of the economy, policy measures implemented and general resilience of the innovation ecosystems. Therefore, RIS3 offers this urgently needed local recovery path.

The potential contribution of the RIS3 also lies in a unique character of the Covid-19 crisis. The crisis outbreak was in the health sector but it had spilled over on almost all aspects of business and lives. In the economic sector, the crisis has created new market trends and niches and innovation can play an important role to help companies in adapting to it and benefiting from it [12].

Since innovation is an interactive process, embedded in social, institutional and cultural framework, the full potential of smart specialisation can be achieved by (re)activating regional innovation ecosystems. The future smart specialisation strategies will have to focus on different perspectives of globalisation such as the new supply chains and developing sustainable and resilient economies. This includes the following:

- Creating a new sense of social solidarity and engaging different stakeholders in Entrepreneurial Discovery Process that can identify competitive advantages of the region and position the region in European value chains.
- Development of efficient innovation policy instruments to support the structural transformation of the economy at the regional/national level and on learning capacity.
- Transnational collaboration and search for “smart complementarities“ supported by the transnational cooperation programmes and strategic partnerships [13].

Smart specialisation strategies are recognised not only as support to the economic recovery, but also as a cornerstone of the needed green transition of the EU. The pandemic has started in the period when the EU has introduced a new growth strategy, the European Green Deal which is based on strong support to the research and innovation in order to tackle the environmental challenges.

## 5. THE EVOLUTION FROM S3 TO S4

The European Green Deal (EGD) was presented in 2019 as a new main growth strategy of the EU that will bring EU economy and society to a more sustainable path and enable that the EU becomes the first climate neutral continent by 2050. It also aims to ensure a strong contribution to the United Nation’s 2030 Agenda and the sustainable development goals (SDGs) [14]. On the other hand, smart specialisation is a bottom-up approach focused on place-based innovation and entrepreneurial discovery process. Therefore, the S3 can become a crucial path for achieving the SDGs and goals of European Green Deal by linking bottom-up processes with the top-down development agendas. In relation to this, the European Commission is working on transformation of S3 to Smart Specialisation Strategies for Sustainability (S4).

In order to shift from S3 to S4 and to meet the objectives of the UN 2030 Agenda and the EGD, the following aspects should be taken into consideration:

- focusing S3 on innovation and industry policy through the lens of a transitions and systems approach,
- formulating a holistic approach towards S4 development, combining a bottom-up approach (Entrepreneurial Discovery Process) with top-down guidance (missions and grand societal challenges),
- targeting policy coherence and coordination (within administrative decision authority and cross-borders),
- integrating EGD/SDGs goals and objectives into the S4 design and implementation,
- considering the three principles of sufficiency, resilience and efficiency,
- evaluating capacities, competences and available resources needed for effective implementation,
- considering environmental impacts within and across regional and national borders,
- going beyond ex-post reporting or checklist exercises on related SDGs through ex-ante planning,
- considering opportunities and the possible impacts of digitalisation [15].



New approach to smart specialisation strategies includes linking it with mission-oriented policies for sustainable development. Therefore, innovation should not be based only on aspirations for competitiveness but also on societal and environmental challenges in order to be “intermediate step towards the longer-term goals of fostering sustainability and inclusiveness” [16]. In this respect, it is recommended transformation of S3 to smart specialisation strategies for sustainable and inclusive growth (S4+). Table 1 presents intervention logic to support evolution from S3 to S4.

**Table 1:** Intervention logic for transformation from S3 to S4

Intervention logic	S3	S4
<i>SWOT analysis</i>	Appraise endowments in assets Assess innovation potential in a territory Appraise entrepreneurial base and dynamics Identify international networks and value chains	Strengthen S3, and ... S4: Position the SWOT analysis in the ecological and digital transitions of the energy, manufacturing, agri-food, housing, and mobility systems.
<i>Governance</i>	Management structure in place Participation of stakeholders in quadruple helix Institutional and human resources capacity	Strengthen S3, and ... S4: Role of the state goes beyond being facilitator and catalyst to co-create system transformation. This requires management reforms and capacity building to work cross-domains, cross-departments, cross-sectors and cross-disciplines.
<i>Vision</i>	Shared vision on present and future innovation challenges Strategy medium-term	Strengthen S3, and ... S4: Vision goes beyond the R&I system. Could be a societal vision or an industrial vision. The vision should be linked to overall target(s) set in time which is understandable, measurable, ambitious but realistic.
<i>Prioritisation</i>	Revision of previous priorities Identify areas of competitive advantage Verify critical mass of budget for achieving each priority	Strengthen S3, and ... S4: If the priorities are aligned or in the same overall direction as the overall EU-level investments, then the potential of reaching critical mass and of crowding-in of private investment and of EU funds increases.
<i>Implementation</i>	Broad definition of innovation Balance between focused and horizontal measures Upgrading existing industry using KETs and digital Experimentation in pilot actions Innovation ecosystems International collaboration search for value chains	Strengthen S3, and ... S4: The Implementation is driven by innovation but mobilises in synergy with other policy areas and investments, such as infrastructure, skills, etc. S4: The local framework conditions to innovation are now also European. When local entrepreneurs detect barriers to innovation for sustainability this can be channelled in “Green Deals” to the national and EU policy level. S4: Cooperation and mutual learning with other actors of change is facilitated by regional thematic network but the new network externalities are broader.

Source: [16].

## 6. CONCLUSION

Smart specialisation approach was developed a decade ago with the aim to identify priority areas for intervention based on a deep exploration of scientific, innovative and economic potential as well as entrepreneurial discovery process with wide involvement of relevant stakeholders. This innovation policy approach had a great success not only in the EU, but also in many other countries and regions around the world.

Smart specialisation can also be an effective tool to recover from the crisis caused by the Covid-19 pandemics in terms of formulating resistance and reconstruction measures. S3 offers support in the recovery of production process and value chains as well as in economic transformation in accordance with the regional

advantages. The S3 approach is place-based so it can offer targeted support on a regional level which is especially important since the Covid-19 crisis had uneven effect on countries and regions.

Smart specialisation strategies are place-based and innovation-led transformation agendas for achieving not only economic growth, but also sustainability and inclusiveness. Innovation are now considered as a useful tool for addressing environmental and societal challenges by creating new competitiveness foundations based on green technologies and digitalisation. Due to its bottom-up character, the S3 can become a crucial path for achieving the UN SDGs and goals of European Green Deal by linking bottom-up processes with the top-down development agendas.

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