

From Projects to Transformations: Why Do Only Some Countries and Regions Advance? The Case of the Slovenian S4

Peter Wostner*

The paper scrutinises the Smart Specialisation approach conceptually as well as its practical application in the case of Slovenian Smart Specialisation Strategy, the S4. It argues that Smart Specialisation still tends to be too narrowly applied and that its potential, on the EU level, is not yet fully exploited. The paper investigates where the roots of competitiveness in the modern world lie and argues that investment is a necessary but not a sufficient condition and that it is structural transformation that is at the heart of advancement. The Slovenian S4's major contribution is not only in the setting of national priorities as regards innovation. What matters even more is that S4 is fundamentally transforming the way stakeholders on the ground interact with each other, creating value networks, but it is also transforming the way policy-making is done within the government. It is shifting the perception of the government as a source of financing to a facilitator of change. The paper demonstrates how fundamental is the difference between the financing of projects and the financing of policies. They are the flipside of the same coin as investment and structural transformation, with the former being a necessary but not sufficient condition for advancement of non-frontier regions and it is here that policies like Cohesion policy with their ex-ante conditionalities really make a difference. Finally, structural transformation is very hard to achieve, which is why putting external pressure for change but also a guarantee of longer term commitment through ex-ante conditionality, i.e. outside pressure, is critical.

I. Introduction: Putting RIS3 under Scrutiny

RIS3 stands for Research and Innovation Strategies for Smart Specialisation. This perhaps at some point seemed to be an attractive phrase, by now it has become clear that the name is not catchy at best and misleading at worst.¹ Why is the name important? Because *smart specialisation potentially represents one of the more significant EU policy innovations* that might deliver profound change in the way policies are put into practice. In order to deliver on the ground, however, policy makers will need to stick to the concept over time and for that to happen also “smart” communication is essential. And the name does not help, so even more emphasis will need to be put on substance, the actual impact, which eventually should determine RIS3's future.

The substance and impact of RIS3s is the purpose of this paper, namely to *critically assess the key fea-*

tures of the Smart Specialisation concept through practitioners' experience. Furthermore, the concept's value added will be put against what both theory and practice seem to suggest as to what matters most when development promotion of a region or a country is concerned. Conceptual considerations will then be translated into the Slovenian reality, i.e. how is

* Peter Wostner works at the Government Office for Development and European Cohesion Policy in Slovenia, as the head of Smart Specialisation Coordinating Unit. The content and conclusions of this article do not necessarily represent the views of the employer and are a responsibility of the author.

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¹ It is worth bearing in mind that the RIS3 name evolved from the RIS concept that was applied previously, which actually referred to *Regional Innovation Strategies*.

that reflected in the actual policy-making context in Slovenia.

In the paper I will argue that:

- smart Specialisation is wrongly associated with research, technological development and innovation (RTDI) policy only as, if it wants to achieve the stated goals, it must reach well beyond to other policy domains;
- smart Specialisation is not about specialisation, but about diversification that can admittedly only be achieved through specialisation (but in a diversified context), i.e. about engaging in new entrepreneurial activity;
- the main value added of Smart Specialisation is not in prioritisation, but in structural transformation that is expected to be triggered through modified interaction patterns among the stakeholders.
- there is a fundamental *difference between financing of project and policy*, which are the flipside of investment and investment and structural transformation combined. In the EU context *both are needed*, provided that they work in a complementary fashion.
- the focus of Smart Specialisation is on the economy, but in order to achieve transformation it needs to go well beyond the economic towards the social sphere as well;
- structural transformation of a region is an exception to the rule as it is really hard to be achieved by the region itself – this is why the role of Cohesion policy by *putting external pressure for change*, but also a guarantee of longer term commitment, *is so important*.
- the word ‘smart’ in RIS3 is wrongly perceived, by the public at least; namely that it is about the high-tech, crème-de-la-crème type of activities, which is only part of the equation and as such undermining the RIS3s’ potential.

A number of these statements are actually not just compatible but fully in line with the RIS3 concept

– I mention them nonetheless for two reasons: a.) in spite of consistency their weight should be further recognised and strengthened in the RIS3 process and/or b.) the name suggests exactly the opposite and that matters a lot, as in practice first impressions are really hard to get away with, making it harder to convince the stakeholders about RIS3’s virtues.

Based on conceptual and practical analysis I will conclude the paper by recognising that RIS3 is an essential tool for transformation whose value added goes well beyond what it was originally intended to do – or at the very least, this can definitely be argued for the *Slovenian Smart Specialisation Strategy, the S4*.

II. What Really Matters (on Top of the Obvious)

According to the RIS3 Guide,² RIS3s are *integrated, place based economic transformation* agendas that focus policy support, build comparative advantages, support different types of innovation, get stakeholders involved and are evidence based.³ Perhaps the two main distinct features according to the same source are the prioritisation through the entrepreneurial discovery process (EDP) combining top-down and bottom-up approaches and linking those to the outer world, i.e. having the ambition to find “specialisations” at the international level, to differentiate relative or in a complementary fashion to the others, which of course is especially relevant among the plethora of regions within the EU. Finally, RIS3 represents an approach for *every* region, of course taking into account “geographically specific characteristics”.⁴

What follows are a *selection of considerations, which according to my experience do not receive enough attention or should be even more strongly emphasised*. Due to lack of space I will assume in this article that investment is needed for growth (the obvious) and that “global growth will be increasingly driven by innovation and investment in skills”.⁵ The question will thus be what kind of investment really makes a change and how, where and why innovation really comes about?

2 Foray D. et al. Guide to Research and Innovation Strategies for Smart Specialisation (RIS 3) (2012).

3 Ibid., 8.

4 Ibid., 14.

5 OECD, Science, Technology and Innovation Outlook 2016: Megatrends affecting science, technology and innovation (OECD Publishing 2016).

1. The Context: Different Regions and Global Transformations

a. Different RIS3 Contexts

Part of the Guide, as well as the way it is interpreted by the European Commission (EC), explicitly addresses differences among regions and countries where RIS3s are to be applied, specifically in relation to how the EDP is done, taking into account the principles of regional embeddedness and relatedness, connectivity and integration.⁶ This is really important. That said, however, other recommendations do not seem to be differentiated and, in my view, one critical contextual difference is missing and that is *the (financial) weight of RIS3s in the national or regional policy mix*.

RIS3s indeed can or should be applied in every region and those regions would, in theory, apply the majority of the available public support relevant for innovation in line with the strategy. In practice, however, this is not how it works.

Given that RIS3 is an ex-ante conditionality to access RTDI funding from the Structural Funds, there is an inherent EU funding bias of the RIS3s, at least for now, but most likely also in the foreseeable future. So what this means in practice is that *more advanced regions and countries use RIS3 for experimentation and experimentation only*; while keeping their nationally funded mainstream RTDI policies intact. Or rather, to be potentially adjusted only after tangible results would be achieved.

For the remaining regions and countries the situation is completely different. In the majority of those regions, especially lagging ones, Structural funds RTDI funding represents the dominant, if not almost the only funding source. In the case of Slovenia, for example, more or less only funding for basic science comes from the national public purse, on top, of course, of the required co-financing part of Structural funds. And this means that RIS3s in lagging regions and countries still represents an experiment, but an experiment in an “all-in” style, i.e. experimenting with virtually all the available resources.

As will be shown, this is potentially a good thing, provided that some concessions would be taken on board, in particular as far as the granularity level of set priority domains is concerned. Given the weaker institutions in this type of regions, it does not seem realistic to expect that prioritisation could be done within the strategy preparation only. Instead, for

these regions, where RIS3s de facto represent their complete RTDI policy, *prioritisation should be understood as a process*, which is conditioned upon a clearly defined governance structure that should ensure ownership by the private sector. This is the recipe that is being successfully used in the case of the Slovenian S4.

b. Markets Are Global: Networks & Cooperation

The international dimension is one of the key RIS3's features that is also strongly and systematically promoted in practice. And rightly so, because the level of international involvement is arguably closely related to how advanced a region or a country is.⁷ So there is a clear case for external pressure exerted through ex-ante conditionalities.

That said, it could be argued that except for the really big players, which are an exception, the *role of global value chains is still underestimated*. They might be referred to in strategies, but it is questionable to what extent they are really taken into account as are specialisations of competing regions.

Why is this the case? As far as the former is concerned there are strong economies of scale and scope in the *internationalisation process that require cooperation, i.e. developed institutions and social capital*. Which, almost by definition, is a weak spot in the lagging regions and countries. Internationalisation is also related to significant transaction costs and delayed return on investment, meaning that there is likely to be systematic underinvestment in this area.

Awareness of what others are doing is to know your competition. Companies do it by definition; it is not so with regions and countries, because this is also rather costly and requires significant institutional capacity that tends not to be available.

The lesson here is therefore that internationalisation and networking is only possible, in practice, through cooperation and creation of value networks at home. *It is only through developed domestic institutions that real internationalisation is possible*. And this also tends to be overlooked in the preparatory process: where governance structures are not set up

⁶ Foray et al, 2012, 14.

⁷ OECD, *Interconnected Economies; Benefiting From Global Value Chains* (OECD Publishing 2013); OECD, *The Future of Productivity* (working document prepared as part of the project on Long Run Productivity 2015).

yet it is simply not likely that serious internationalisation assessments would be performed. The latter is also related to the following point, which is the complexity of the modern world, where, for reasons of limited knowledge and interdisciplinarity, triple or quadruple helix partnerships are vital.

c. Uncertainty + Complexity + Creativity = Innovation

In order to understand the key differentiating competitiveness factors it is essential to understand today's business development landscape. I will argue that *capacity to cooperate among competitors* (the concept of 'coopetition') is the key differentiating factor among best and worst growth performers as no one can do it alone, not any more, and this is starting to be true even for the global giants. The latter is the case because it is both the size and strength as well as the speed that are needed to keep a player in front of competition. And there are a couple of systemic reasons why this is now more the case than ever.

The first reason is the *unprecedented speed of technological and societal change*,⁸ which translates in *highly uncertain environments*. As a consequence it is increasingly difficult for an individual market player to stay ahead of competition in his or hers own niche, while at the same time follow all the trends and innovations around those niches and especially hard to follow and think about new, disruptive approaches that might address the same kind of problems. Furthermore, given time delays between today's R&D activity and market entry, *it is essential, in spite of uncertainty, to think about how future (markets) will look*. And that is very costly for an individual player to do. Also, it is from the interaction with other agents that new, also disruptive, ideas are born. Hence, the essential necessity of cooperation.

Secondly, in order to be successful, today, it is not just the product or service that matters. To borrow

the words of Joichi Ito from MIT Media Lab, one needs to *envision* what is coming, engage in market creation, *embody* what markets need and then also to *inspire* the consumer who is actually not buying a product or service but a meaning and a purpose. And in order to grasp all these elements, a *multiplicity of life dimensions and disciplines need to be taken on board at the same time*. To illustrate the point refer to figure 1, left, where Neri Oxman is demonstrating interrelatedness between information, knowledge, utility and behaviour on the basis of four modalities of human behaviour: Science, Engineering, Design and Art. And it is the capacity to harness the potential of different stakeholders working in different fields, to create the *atmosphere of open, collaborative innovation* that represents the holy grail of advancement.

That this is not just a theoretical consideration is illustrated by the right side of the same figure that shows how these concepts are being put into practice in the case of Slovenia. In the middle are Strategic research and innovation partnerships (SRIPs), clusters bringing together quadruple-helix stakeholders per each S4 priority domain, which are embedded in innovative support environments (technology parks, technology transfer offices, etc.), structured design and art support environment, backed by open society initiatives ranging from entrepreneurial and creativity schemes in the education system, to youth activation and participation measures, to science museum programmes. More detailed presentation of interrelationship will follow in the next section, what matters at this point however is that *it is the system as a whole that makes a difference, not just individual parts*.

Thirdly and lastly, fusion of different approaches and interdisciplinarity is at the heart of *creativity and disruptive innovation*. It is the interaction that creates new value and one can go back to Alfred Marshall's statement that "The mysteries of the trade are no mysteries, but are as it were *in the air*".⁹

By referring to "*the air*" one should not be misled that this is only the atmosphere that matters; the same principles apply also within particular dimensions. With technology development, for example, it is the *convergence of technologies*, i.e. mixture of different technological approaches that result in greatest innovations.¹⁰ Within the higher education system it is the extent to which people (students and researchers) from different disciplines are encouraged to mix.

8 Refer for example to OECD, OECD Science, Technology and Innovation Outlook 2016 (OECD Publishing 2016).

9 Marshall A., Principles of Economics (First ed., Macmillan 1890).

10 Refer to OECD, Challenges and Opportunities for Innovation through Technology: The Convergence of Technologies (OECD Publishing 2013); OECD, Enabling The Next Production Revolution: Issues Paper (background document prepared for the Danish Production Council conference "Shaping the Strategy for Tomorrow's Production" 2015); Joichi, I., Design and Science (2016), available online at <<https://www.pubpub.org/pub/designandscience>> (last accessed on 1 March 2017).

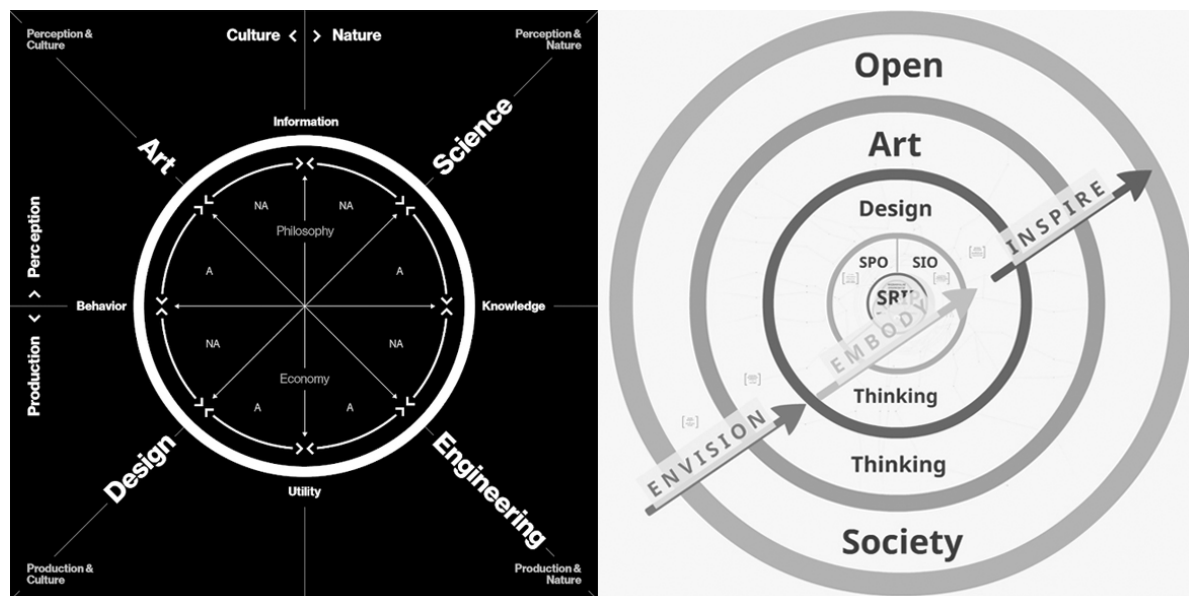


Figure 1: Illustration of why inter-disciplinarity matters (left) and how this translates into S4 reality (right). Source: Neri Oxman, 2016, available online at <<http://jods.mitpress.mit.edu/pub/AgeOfEntanglement>> (last accessed on 10 March 2017) (left) and official presentation of Slovenian innovation eco-system as being put into practice through S4 (right), accessible at <<http://www.svrk.gov.si/en>> (last accessed on 10 March 2017). SIO refers to Slovenian Innovative Support Environment, while SPO refers to Slovenian Entrepreneurship Environment.

So there are three major systemic reasons, uncertainty, complexity and creativity through interaction, which clearly justify why *cooperation is essential for innovation*, i.e. achieving actual success in the global markets. And why is such cooperation so hard to achieve? From a practitioner's perspective I would point out three reasons:

- It is clear from the presentation above that genuinely *innovative ecosystems are diverse and rather complex*, which requires not just well-established institutional capacity but also very strong leadership to actually put it into practice.
- Cooperation in practice also means disclosure of sensitive information, only a small part of which is protected though intellectual property rights, especially as regards future intentions. But it is the exchange of such vital information that needs to be achieved if one is to make use of economies of cooperation. And this is why governance structures/institutions are so important as *the key ingredient for cooperation is trust*, which brings us to the last element.
- Setting up complex ecosystems and development of trust both *require time*. These are longer-term

processes that need to be supported by a consistent policy framework. And here *Cohesion policy's top-down pressure as well as predictability is of essential importance*.

2. From Supporting Projects to Policy Support

a. Investment with or without Structural Transformation?

In order to understand better the drivers of growth let us turn back to Robert Solow's 1956 growth theory and its simple conclusion: in order to grow you need capital, people and/or growth in total factor productivity.¹¹ For those regions that lack capital, infrastructure and human capital, investing in all of these clearly makes sense – and where there is not enough national investment capacity, both private

¹¹ Solow, R. M., 'A contribution to the theory of economic growth' [1956] 70 Quarterly Journal of Economics 65, 94.

and public, than it has to be brought from the outside.

A number of policy instruments target this kind of approach alone. For example Juncker's investment plan for Europe focuses on investment promotion. And rightly so, but what can really be expected in different parts of the EU, after controlling for absorption capacity which, due to different concentrations of economic activity, is systematically different in line with differing returns on investment?

In the frontier regions classification,¹² Juncker plan's investment really might have a significant impact because this is where innovation ecosystems function and where competitiveness is based on tacit knowledge that is hard to replicate, i.e. segments of the market where competition is weaker and where returns are significantly higher. Other regions compete in other segments of the market, which to a greater extent rely on codified knowledge and standardised procedures – and this, in a hyper globalised world, means low value added. And given that is it not their choice to remain in this group the reason for observed persistence in development levels must be somewhere else.

So, a logical question to ask is whether there are inherent (economic) reasons why, it appears that there are always only a handful of really successful regions, i.e. are non-frontier regions destined to remain non-frontier? Or is this simply a matter of bad policies and/or bad governance on their part? Answering this question goes beyond the scope of this paper, and even though there might be trends which indeed favour for example “winner takes it all” scenarios, I would argue for the latter interpretation. And the reason for this is simple, namely, that it does not seem consistent that the more regions that would successfully make the transition in the advanced group, the more advanced and resilient regions would suddenly need to fall back.

It seems much more probable that one needs to go beyond the “obvious” condition of investment, the necessary condition for advancement. I would argue that the sufficient condition to move among the lead-

ing regions is *structural transformation of the way economies and indeed societies function*. There is nothing revolutionary about this point as it is of course based on well and long known institutional, social capital and other theories arguing for the role of “soft” growth factors.

But what is less obvious from such a conclusion is that *this is generally not really properly taken into account in policy design*. That is to say, within the EU context, there is a fundamental difference between funding provided through the Juncker plan that finances *projects* (even if they are previously backed up by technical assistance, which helps put together a project's technical specifications) and for example Cohesion *policy* that also finances projects, but does so on condition that previously defined and methodologically supported conditions (regulatory, strategic/policy and institutional) are fulfilled. And the *RIS3 is the best possible example that directly addresses structural transformation* as will be demonstrated in the next section on the case of S4. This is of course not to say that due to existence of Cohesion policy the Juncker plan should not exist. It does say however that having the Juncker plan alone would certainly not deliver as hoped for, at least not in large parts of the EU. In other words, *both approaches are needed* provided that they work in a complementary fashion.

It is also worth noting that structural transformation is about the change of how not just economies but how the whole societies function. Why is that? Because open, collaborative innovation is about atmosphere, that ‘something in the air’ and is directly related to personal motivation, engagement and activation, relationships and interaction, safety and eventually, trust. Hence it is essential to understand that the *RIS3*, if it is to be understood as a vehicle of structural transformation and hence real impact, *needs to go well beyond the sphere of economic, let alone RTDI policies*.

b. From Sectoral and Integrated to Integrated per Priority Domain

There is a rich body of literature on the limits of sectoral and the virtues of an integrated approach, which is capable of providing “bundles of public goods and services” needed for growth and jobs.¹³ And, as argued above, innovation and the *RIS3* are no exception: in order to successfully promote innovation, a number of development policies need to be tackled:

12 OECD, The Future of Productivity (working document prepared as part of the project on Long Run Productivity 2015); OECD, OECD Regional Outlook 2016 (OECD Publishing 2016).

13 For example: OECD, OECD Regional Outlook 2011 (OECD Publishing 2011); Barca, F., An agenda for a reformed cohesion policy: A place-based approach to meeting European Union challenges and expectation (2009).

RTDI, human resources, internationalisation, entrepreneurship, urban and rural policies, etc. I will demonstrate in the next section not just how this is done in the case of Slovenia, but especially, that *it is not just strategic consistency* that matters, but that it is *the very details of how policies are put on the ground* that will often determine whether mutually reinforcing impact among different policies can be expected or not.

From the systems perspective, though, the RIS3 allows going a step further. Integrated policy approaches have in practice been attributed either to horizontal policy complementarities or to territorial approaches. The RIS3, however, opens a window of opportunity to apply an *integrated approach per priority domain* and this is critical.

Namely, if there is one lesson from our S4 preparation it is that *each priority domain is different/specific* in almost every possible sense of the word: from the economic structure, to market characteristics, future scenarios as well as from the perspective of what are the most critical challenges, but also opportunities. Without the RIS3 those specificities cannot be applied, assuming of course that some other decision does not specify national/regional priorities clearly enough. But at least as far as non-frontier regions are concerned such prioritisation does not seem to be present. So *it is really the RIS3* in those regions *that opens the door not just to integrate policies, but to integrate and adapt them for each of the priority domains*. Such an approach should arguably deliver superior results in terms of effectiveness and efficiency, though it is not easy, practically, to put in place.

In the case of Slovenia such an approach was drafted within the S4 coordinating structure at the government level, but at least for now, we were not able to fully implement it yet. The reasons for somewhat gradual introduction presumably have to do with increased policy mix complexity combined with limited administrative capacity, but also with political challenges in the sense that policy selectivity with such an approach becomes even more obvious on the one hand, while on the other it is hard(er) to communicate more complex packages.

III. Slovenian S4 as Driver of Change

The considerations presented thus far on the conceptual level will now be demonstrated, on a more de-

tailed level, based on the practical case of Slovenian S4. Figure 2 shows a snapshot from the official S4 presentation, for both domestic and international stakeholders, presenting what the key Slovenian RIS3 contributions (value added) are.

1. Priorities and Entrepreneurial Discovery Process

The RIS3 strategy, at the beginning of its preparation in Slovenia, was primarily perceived as a priority setting exercise for the RTDI part of EU Structural Funds. When the current S4 team took the preparation over in 2014 it has been encouraged by the JRC's S3 Platform to come out with a much more ambitious concept and agenda. It framed and linked the discussion on priority setting with the governance structure, i.e. the promotion of cooperation and collaboration and other dimensions. Especially, it enlarged the scope of RIS3 beyond the RTDI policy.

What was vital in this process was the earning of *credibility* among the stakeholders and companies in particular (which, given the extremely negative publicity at the time, was all but self-evident). And credibility came from newly prepared *empirical evidence*, which was thoroughly analysed and interpreted by the S4 team, on the one hand, and a *proactive approach*, on the other. By the latter I mean in particular that the government did not enter the entrepreneurial discovery process (EDP) asking what stakeholders think should be done, from scratch, but came out with a concept, ideas, proposals regarding what the RIS3 should be about.

That said, the whole priority setting exercise was about *linking stakeholders* amongst each other and creating the *open atmosphere of collaboration* with a clear idea of what do 'we', together, want to achieve. And given that the proposed concept was not about RTDI in the first place, the S4 team was able to attract attention from literally every dynamic group of society: apart from the obvious, i.e. the companies and research organisations, we were able to attract in the discussion the start-up community, the educational community, NGOs, social entrepreneurs, artists, innovators, scholars, students, etc. And this *inclusiveness and interconnectedness*, backed by an open and forward-looking atmosphere, were essential.

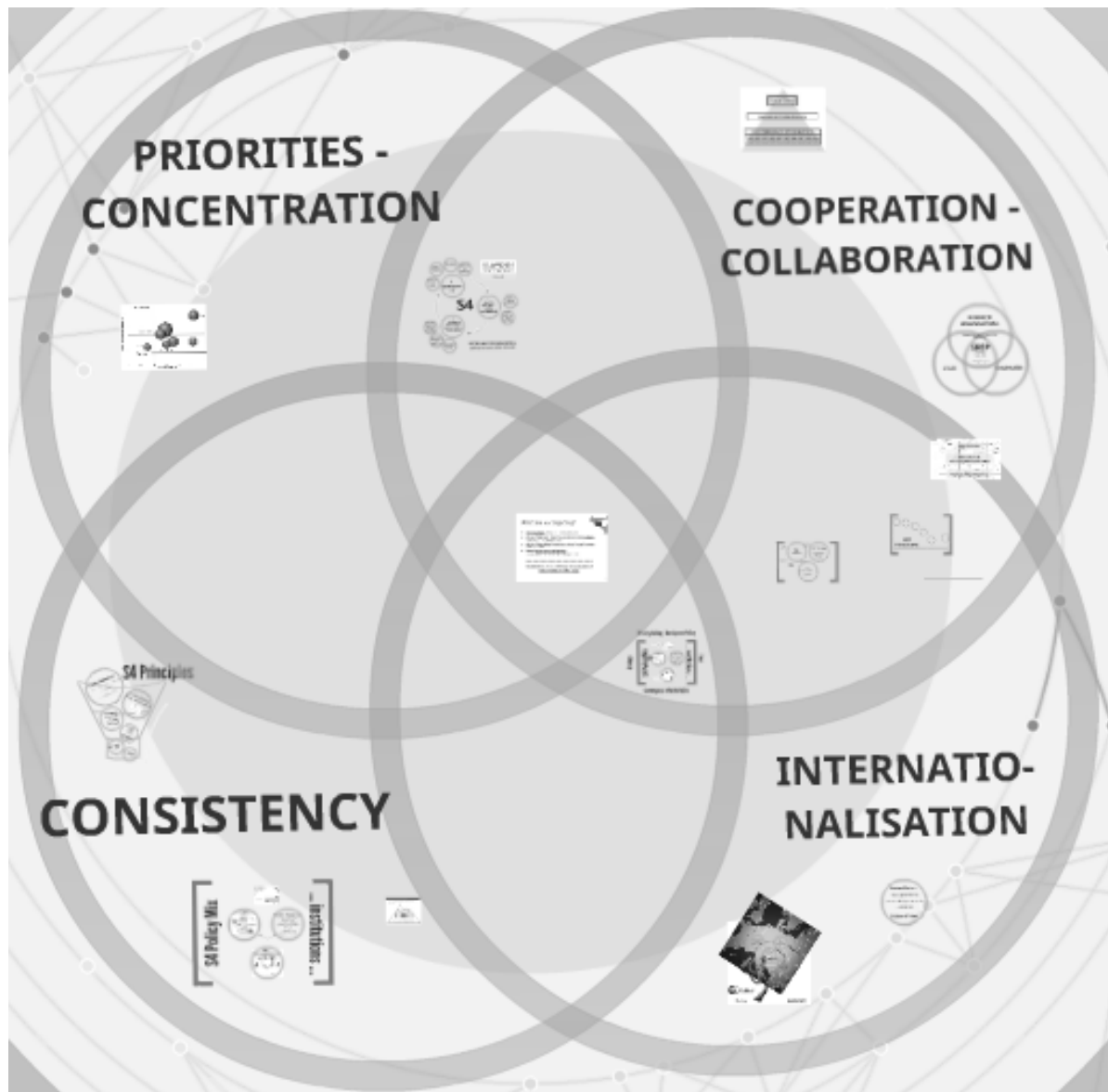


Figure 2: Key S4 contributions.

Source: Complete presentation can be accessed online at <http://www.svrk.gov.si/en/> (last accessed on 10 March 2017).

One of the interesting lessons from this exercise was, at least as far as Slovenia is concerned, that stakeholders actually expect the *government to play a leading role*. Not in the sense of top-down decision maker, but in the sense of fair mediator, facilitator and conceptual leader that is able to come up with consistent policy and conceptual proposals on the one side, but also has the capacity and commitment to deliver on those ideas on the other.

S4 priorities were eventually structured around three pillars that could be described as transition towards the next industrial revolution, (S)Industry 4.0 (3); Traditional going Circular (2); and putting Slovenia as a Reference Digital Country (1). The structure of these pillars does not only reflect differing objectives and opportunities, but also differences in the economic structure within Slovenia. Within the three pillars', priority domains, i.e. areas of applica-



Figure 3: S4's three priorities with nine areas of application, i.e. priority domains.

Source: Complete presentation can be accessed online at <http://www.svrk.gov.si/en> (last accessed on 10 March 2017).

tion, were specified, including the so-called focus areas.

A closer look at these priorities and priority domains reveals that they are still rather broad. However, the following needs to be taken into account:

- Slovenia is the eighth most diversified OECD country,¹⁴ there is a lot going on and this is a strength; as a consequence, however, there are number of promising areas of opportunity.

- The areas selected are all based on the clear existence of competencies and capacities. What is more, through the EDP process it was made sure

¹⁴ OECD, OECD Science, Technology and Industry Scoreboard 2013 (OECD Publishing 2013). Available at http://www.oecd-ilibrary.org/science-and-technology/oecd-science-technology-and-industry-scoreboard-2011_sti_scoreboard-2011-en (last accessed on 17 March 2017).

- that those have to exist through the whole development cycle, i.e. linking the push and pull sides.
- In order to promote new ventures as much as possible, convergence of different technologies and product groups was and is still being systematically promoted.
 - Finally, and this is the main point, we always understood *priority setting as a process* that is dependent on setting up S4 governance structures. Why is this important? Because it is only through the established RIS3 institutions that one can gain serious and credible commitments from the private sector on its financial contribution, i.e. investment. And this is the key, the idea of co-investment, partnership within the triple/quadruple helix.

2. Institutions & SRIPs = Value Networks

The institutional part of the RIS3 represents the second and arguably the most important value added of the strategy. On the basis of the S4, Slovenia set up *Strategic Research and Innovation Partnerships (SRIPs)*, which bring together companies, knowledge institutions, the government and other relevant stakeholders (e.g. NGOs). They are set up per priority domain, i.e. nine SRIPs, and this is essential as they bring together stakeholders that operate in a certain area. And given that every area is different, specific SRIPs are making *differentiated policies* possible: based on real partnership.

What follows are the key arguments showing why SRIPs are essential:

- SRIPs are a meeting point of stakeholders, very diverse stakeholders, which work or have interest in working in a particular area. With the SRIPs *cooperation has already been significantly intensified*, not only between firms and knowledge institutions, but also among companies themselves as well as with the government. Such cooperation is promoting longer term relationships that should eventually lead to *trust*, and thus enable stronger cooperation also further downstream. It is also worth noting that through the SRIPs, which are by definition open to new/other stakeholders and, as such, are part of the Slovenian support environ-

ment, the government now has the legal basis to directly engage in partnership with the private sector. This might seem self-evident also without the SRIPs, but at least in Slovenia, and arguably also in other Central and Eastern European countries, this does not represent a usual practice, also due to formal reasons (e.g. anti-corruption).

- It takes time before new institutions start to fully perform. This is why SRIPs are being set up for at least until 2022, giving assurance to the stakeholders that there will be enough time to get a return on what is a rather significant investment (especially of time) on their part, due to high transaction costs in the beginning. Secondly, it should also be noted that SRIPs fundamentally promote *upgrading of existing institutions* whose function is to integrate stakeholders in the field of innovation. There have been numerous institutions like that in Slovenia in the past, none of which has had the capacity and strength to perform the tasks needed.
- SRIPs will pull resources in a *market foresight* exercise¹⁵ on the basis of which *Slovenian stakeholders' more detailed comparative advantages* will be established. Furthermore, this foresight will be additionally supported by the *“future lab”*, also backed up by the government, which will systematically promote interdisciplinarity and disruptive innovation through art and design thinking approaches. And this is an especially important point. To illustrate: how can a home appliance producer know where to invest in RTDI, if he does not have a feeling of how the home is likely to look in 10, 15, 20 years time? Indeed, it is impossible to know, but it is critical to think about this systematically, by experts, designers, artists, and other profiles, from numerous fields. And this is very costly for an individual player: hence the argument of *economies of scale and scope*, by pulling resources and setting up such a future lab that will help all stakeholders working in the area of “home” simultaneously, thereby making Slovenia even more attractive not just for existing businesses but also for start-ups as well as for FDIs.
- It is only after clear specialisation in a given field is developed through the continuous entrepreneurial discovery process, that it is possible for the government to properly adjust policies, as S4 experience demonstrates: *RTDI policy, human resource policy* (e.g. higher educational pro-

15 OECD, The Next Production Revolution –An Interim Project Report (2016).

grammes, vocational education and training, scholarships, etc.), *internationalisation policy*, including economic diplomacy. Given that these are national priorities it is also clearer which *regulatory and bureaucratic barriers* should be abolished first, which precompetitive procurement procedures, *pilot and demonstration projects* should be initiated, etc. Such interaction between policies and S4 governance structure de facto works towards an *integrated approach adapted to specific priority domains*, which represents an upgrade from a standard integrated approach. Furthermore, many of these decisions fall under the scope of prime time political decision-making. As a consequence a dedicated working group of relevant ministries' deputy ministers has been set up, whose function, entrusted by the government, is to liaise with the SRIPs. This working group represents the SRIPs' counterpart on the political level, which does not only gives additional weight to the process, but especially gives assurance that what will be agreed will actually also get done.

- Given that SRIPs already connect significant number of stakeholders from different backgrounds and fields, they are internally structured in vertical value chains and horizontal networks. These structures eventually also mean structuring of innovation activities within Slovenia. There are three issues that deserve special mention in this regard though: first, priority domains are interrelated and, as a consequence, SRIPs and their internal structures should not be seen as classical clusters, but more as *value networks* that will work collaboratively; second, *convergence of different technologies* will be systematically promoted through the SRIP financing mechanism; third, SRIPs will be *embedded in the Slovenian innovative support environment* as direct cooperation is being established between SRIPs and technology parks, technology transfer offices, the start-up community, accelerators, lean innovation promotion teams, etc. (refer to the right side of figure 1).

3. The Government as Facilitator of Change

The paradigmatic shift of perception happened when S4 and *the government* stopped being perceived as a “source of funding” and started to be seen as a *facil-*

itator of change: the third S4 key contribution. It took time to make this transition, but this is truly significant. Government is now focusing on setting up open platforms of cooperation and open, collaborative innovation, bringing together people from completely different backgrounds that would otherwise hardly meet (e.g. CEOs and artists). And it is doing so with a clear vision of where it wants to go and also (!) with a clear idea how we should all get there. Such a change of paradigm is based on the following changes:

- *Significantly strengthened interdepartmental coordination* facilitated by a dedicated coordinating unit within the Government office that is responsible for development policy as well as managing authority for Cohesion policy.¹⁶ Both functions are essential here as the development policy coordinating function provides the basis to think beyond the “EU funding”, whereas the latter provides the Office with power to enforce consistency, at least as far as EU funding schemes are concerned. In the first year of operation the S4 unit has thus managed to ensure that 19 funding schemes, from RTDI, HR, internationalisation and entrepreneurship policies explicitly relate to the S4 strategy, thereby translating words into action. And the point here is not about referring to the S4 strategy as such but to ensure complementarity of detailed call provisions that have to work hand in hand in order to achieve S4 results. It should also be underlined that the EC's role of “principal” supervising the fulfilment and implementation of the ex-ante conditionality *is critical* here as political (in)stability does not give enough credibility to any government at any given point of time.
- The mandate and the managing authority power gives credibility and weight to the *leadership* role that the Government office is supposed to exercise. It is essential to underline though that, in practice, coordination is in 95% done through soft coordination. This is essential, as power and leadership without *ownership by the relevant departments and beyond*, are completely and utterly useless. So what coordination is really about is actually convincing people at all levels, within and outside the administration, about why the S4 provisions make sense.

¹⁶ The whole name of the institution referred to is Government Office for Development and European Cohesion Policy.

- With the S4, the government’s *innovation policy mix has improved* and is improving constantly as:
 - There is a much stronger institutional base that supports the policy-making (e.g. identification of pilot projects in smart cities between Association of municipalities and the SRIPs).
 - Policies are increasingly adapted to the particularities of different priority domains and certainly more focused, which means greater concentration and critical mass and as a consequence bigger impact.
 - Given detailed coordination policy schemes in different policies are now mutually reinforcing as regards issues like consistencies in time, technology readiness, size of projects consistency, institutional complementarity, etc.

4. S4 Going International

According to the Joint Research Centre’s analysis, Slovenian stakeholders are presently only weakly represented in international S3 partnerships. Our own analysis during the EDP process indicated that number of stakeholders are indeed connected to international networks, however that this is, as a general rule, done on an individual (institution’s) and on a rather ad-hoc basis. This is not surprising given that returns from international cooperation, though essential in the medium term, are not immediate and are, upfront, rather unpredictable. This is all the more true the less connected stakeholders back home are, not just due to resource pulling but also because of clarity of what the focus/priority/interest in that area is. Finally, having a critical mass of stakeholders is also important from the global value chains’ perspectives, as it is hard for them to deal with smaller individual institutions/suppliers.

This is why one of the main SRIP’s functions is international networking in the name of SRIP members – the fourth key contribution by S4. In practice, international networking is being done on a thematic as well as territorial basis. This is being done in

tandem with the government, which now also has the legal basis to promote priorities agreed between the SRIPs and the government. Experience thus far is really encouraging, giving a strong basis to expect *significant improvements in international representation and complementarity of Slovenian industry and knowledge communities in the European and Global value chains*.

Furthermore, the S4 is also seen and understood as a branding exercise as we are working hand in hand with the government’s communication office to link S4 priorities with the global “I Feel sLOVENIA: green, creative, smart” slogan (refer to figure 2). Given that there are systematic S4 innovation promotion measures being undertaken also with the whole educational vertical, that Slovenia is setting up serious future foresight capability, that we are intensively internationalising our accelerator networks across the region, we are also making Slovenia more attractive for business and talent from the outside.

IV. Conclusion: It Matters, It Matters a Lot

According to the OECD “global growth will be increasingly driven by innovation and investment in skills”.¹⁷ At the same time the world and indeed the global markets are becoming more uncertain and increasingly complex. Furthermore, successful producers do not think about their products as “simply products”, but make sure that they are in the capacity not just to embody, but also to envision as well as inspire.¹⁸

What connects all these megatrends is that the *key characteristic of the future winners will be the capacity to cooperate*, also with competitors, in line with the concept of coopetition. Innovation is about bringing together all different stakeholders, it is about openness and collaboration, inter-disciplinarity, reinforcement between four human behaviours (science, engineering, design and art), about platforms and networks, and eventually about trust. The common denominators of all of these are innovative eco-systems and institutions that motivate, activate, connect and eventually create (new) value. They change the way stakeholders function, interact and think and it is this change, which I call structural transformation, which is the key to advancement.

17 OECD, Science, Technology and Innovation Outlook 2016: Megatrends affecting science, technology and innovation (OECD Publishing 2016).

18 Joichi, I., Design and Science (2016); available online at <<https://www.pubpub.org/pub/designandscience>> (last accessed on 1 March 2017).

And this is why the RIS3 strategies are so important: because they directly and explicitly address what matters most – *structural transformation* in the area of innovation. They completely transform the way stakeholders on the ground interact with each other and create value networks, but they also transform the way policy-making is done within the government.

This has at least been the experience from *Slovenian Smart Specialisation Strategy, the S4*, whose *key contribution* was also in setting three priority pillars (S_Industry 4.0, Circular and Digital) with corresponding nine areas of application. The main contribution, however, came from the institution of Strategic Research and Innovation Partnerships, which have transformed patterns of cooperation among firms (themselves), knowledge institutions, the government and other important stakeholders. The S4 has also meant a transformation of the government's role: from a source of financing to a facilitator of change. Finally, the S4 boosted Slovenian stakeholders' involvement in international cooperation by setting priorities and the pooling of resources.

The conceptual as well as practical case of the Slovenian Smart Specialisation Strategy clearly demonstrates *how fundamental the difference between financing of projects and financing of policies is*. The former are important as projects are what eventually delivers investment on the ground and this is clearly needed for growth. Investment, however, is not a sufficient condition, and it is especially not a sufficient condition in non-frontier regions, with weaker institutional capacities and less perfectly developed innovative eco-systems. It is here that the Cohesion policy with the RIS3 type of ex-ante conditionalities is of essential importance.

Finally, structural transformation is very hard to achieve as it means changing the way stakeholders function and it also requires bold and daring (political) decisions (due to vested interests, among others) commitment and leadership. In the institutionally weaker and less stable environments, such transformation is very hard to achieve – this is why putting *external pressure for change* while at the same time also facilitating longer term commitment through ex-ante conditionality on the part of the European Commission is so important.