KET4CleanProduction – How to implement a successful RIS3 Strategy

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Introduction

Have you ever felt like reinventing the wheel? Or would you rather use the wheels you already have more effectively? We suspect the latter…

This line of thought, is worth bearing in mind when developing new policies. It is better to take stock of available concepts, instruments and tools, identify new possibilities stemming from them, and develop potential synergies, than to begin

from scratch and reinvent the wheel.

The same metaphor can also be applied to **“technology”** or **“knowledge” transfer**, the daily work of Steinbeis 2i GmbH. An institution focused on building the capacities of regional enterprises, so that they can pass through the so-called ‘valley of death’ between pure research and innovation. Steinbeis 2i GmbH facilitates the transfer of technology, both hard (e.g. new products, materials), and soft (e.g. academic concepts and policy findings) from theory to practice. This includes engagement with public and private institutions, such as ministries, business development agencies, universities and especially small and medium enterprises (SMEs). Steinbeis 2i GmbH, does not so much create new innovations, but it does make it more likely for their stakeholders to develop their own innovations.

A recent opportunity to engage in this form of ‘knowledge transfer’ was the annual European Week of Regions and Cities (EWRC) in Brussels. Specifically, the focus of this article was a session on “Revitalising Regional Economies through Smart Specialisation and Industry 4.0”, organised by Regional Studies Association, which looked at the experiences of the successful implementation of the Research and Innovation Strategies for Smart Specialisation (RIS3).

Two points stood out in this session, the first was that when participants were surveyed, 50% of them agreed or strongly agreed that their region had clearly adopted a RIS3 strategy. However, at the same time, when asked where there is a need for deeper learning and exchange between regions and stakeholders, the majority of respondents answered: RIS3 implementation. Considering this anomaly, this article returns to the theoretical roots of RIS3 and provides an example from practice, which could serve to build ideas and synergies for the successful implementation of RIS3, without the need for reinventing the wheel.

Smart Specialisation as methodology

At the core of RIS3, lies the economic concept of specialisation. In reference to e.g. Ceapraz (2008) the economic arguments in favour of specialisation stem from the theory of comparative advantages. Whereby, concentrating on the production of specific products or services, economies of scale can reduce the marginal costs per unit of production and increase profits. Furthermore, specialisation is thought

to have localised effects, creating forward and/or backward linkages (spill-overs) into other industries and sectors, ultimately leading to more inclusive economic growth. An example for this could be a dairy farm, where an increase in the production of processed milk products, could have backward linkages to the farms and forward linkages to the distribution or logistics sector.

Smart specialisation can therefore be seen as an innovative policy concept, as it emphasises the principle of prioritisation in a **'vertical'** logic, or in other words it selectively favours some technologies, economic activities and firms. The concept also serves as a methodology to identify these desirable areas, which can then be targeted with policy interventions (Foray 2013). To this end and following Foray (2013), RIS3 should have the following goals:

- A **vertical and non-neutral** logic of intervention,
- An **entrepreneurial discovery** process where market forces are kept working,
- An **interactive process** between policy and the private sector,
- An **activity** – as the right level of intervention,
- An **experimental nature** of policy design.

In its routes, the concept of smart specialisation was developed by a group of scholars in 2008 (Foray, David and Hall 2009) and then integrated into the policy concept. Therefore, during its lifetime of around 10 years the theoretical concept of smart specialisation has made a significant impact on the policy landscape. This is evident though such examples as

- Launch of S3 Platform, that aims to bring in and share different experiences and knowledge on RIS3 from theoretical up until empirical side,
- Setting the concept of RSI3 as the basis for Smart Specialization Strategies, that became a conditionality for regional funding across European regions,
- Initiation of activities by different international institutions, such as OECD and the World Bank, e.g. studies and policy advice following the principles of RIS3.

Moreover, spreading the theoretical and policy concept of RIS3 even beyond the boundaries of the European Union, e.g. by initiating the piloting of RIS3 design

and implementation in EU Neighbouring countries, among others in Ukraine and Serbia.

RIS3 Policy

In terms of the policy following Foray (2013) RIS3 in the European Union is recognised for:

- **Advocating focused public investment** in research, development and innovation activities on a few, carefully chosen priority domains, where the impact can be greater.
- **Creating space for different policies**, especially: innovation, industrial, SME and cluster, to step out of their traditional responsibilities and build synergies between them for a greater impact.
- **Bringing openness and transparency to the policy-making process** by encouraging stakeholder dialogue focused on business and policy needs.
- **Improving institutional capacity** by stimulating inter-ministerial cooperation, exchanges between international and national experts.

At the same time, from the policy perspective RIS3 also faces several dilemmas and challenges. In terms of dilemmas, these are according to Foray (2013):

- S**pace**, meaning the administrative and geographical level appropriate for smart specialisation to take place.
- **Time**, as in different sectors and different activities the impact of smart specialisation could be different, therefore, hindering the generalisation and application of policy instruments.
- **Evolving priorities and the continuity of policy**, meaning as global and local economic, political and technological trends are constantly evolving, so are policy priorities, but also their life span, which respectively relates to the previous dilemmas of space and time.

These dilemmas are closely related to the two main RIS3 challenges: i) **identification of the activities** for the vertical policy prioritisation ii) **prioritisation of domains** for strategic policy support. In this article, more attention will be given to activities and their identification, as they are more closely related to RIS3 implementation.

RIS3 Implementation

The implementation of RIS3 is critical to the success of smart specialisation strategies. Especially now, as since the 2014-15 period, EU regions have already begun to implement RIS3 and have adopted a variety of different participatory models and evidence-based practices to identify and support potential domains of specialisation.

In this light, the goal, but also the motor of RIS3 – as highlighted by European Commission (2016) and stressed by Foray (2013) – is in promoting **Entrepreneurial Discovery Process (EDP).** This is the process that enables prioritisation of investment, based on an inclusive and evidence-based process driven by stakeholders' engagement and attention to market dynamics.

However, EDP is not the only driver in the RIS3 implementation. It works exclusively with the following **main elements of RIS3 implementation** that are strengthened by considering the principles of Good Governance (European Commission 2016)**:**

- **Project selection in funding programmes** – refers to the selection of specific projects and funding programmes, which have the strongest logical connection with RIS3 and related programmes. This creates a better fit with strategic policy objectives, by assuring trust and reliance in the calls for funding and their purpose.
- **Structural and legislative changes** – refers to the means of adjusting structural and legislative norms, particularly by aligning them with vertical policy objectives and assuring that these changes are also discussed with wider related institutions.
- **Updating priorities through a continuous EDP** – refers to the revision of the strategic priorities by means of EDP as a participatory approach including actors from businesses, start-ups and policy makers.
- **External cooperation** – refers to the need for external engagement and benchmarking. Benchmarking ensures not only a better understanding of the current situation, but provides an opportunity to learn about new trends and ideas. Including external observers in the implementation process also provides a further mechanism to learn from others and also allowed gaps in expertise to be filled.

- **Audit and State aid** – refers to the need for audits, as an oversight on the use of public money and as a means to ensure projects remain aligned to strategic objectives.

Monitoring and evaluation – have always been a necessary instrument for monitoring progress, accounting for public expenditures, but also as means for facilitating transparency and learning.

Activities as the right level of policy intervention

Next to EDP, the **activity** has been considered as an essential component and a right level for successful implementation and targeting of RIS3. The advantage of identifying and supporting the implementation through the right activity is that it neither reflects the whole sector nor one single firm, but rather functions as an instrument, which can drive all aforementioned RIS3 goals, especially **EDP**.

The rationale for supporting the activities behind the implementation of RIS3, is that they generate new and innovative processes, which can drive EDP and target RIS3 objectives.

According to the European Commission (2016) activities should:

- **Show potential** – aim at experimenting and discovering technological and market opportunities and have the potential to provide learning spill-overs to others in the economy
- **Have scale and agglomeration economies** or address the characteristics of coordination failures.

To identify new activities as a target level for intervention, one should assess the existing initiatives already present in the ecosystem. These activities would principally follow the **3 main characteristics:**

- **Include different stakeholder groups** – engaging actors, such as SMEs, public authorities, clusters, etc.,
- **Engage various administrative levels** – activities that address several levels of administration, e.g. EU, national, regional, municipal, etc.,
- **Promote new activity types** – such as projects, events, programmes, etc.

The re-invention of the wheel is therefore not needed, but rather the identification of existing and potential activities that would foster synergies between existing and planned policy instruments and facilitate RIS3 implementation.

The case of KET4CleanProduction

Moving from theory to practice, the following section describes an example of a project, implemented by a consortium of 20 partners from 18 different EU countries with coordination of Steinbeis 2i GmbH, which hopefully provides an exemplar for where and how to find the stock of activities that can be identified and applied to facilitate a successful implementation of RIS3.

The project is KET4CleanProduction. It is an EU funded CSA project under H2020-INNOSUP-03-07-08-2017 "Technology services to accelerate the uptake of advanced manufacturing technologies for clean production by manufacturing SMEs".

The project goal is to create Pan-European access for manufacturing SMEs on technology services for clean production, through a network of premier KET Technology Centres (KET TCs) with one-stop-shop access including members of the Enterprise Europe Network (EEN) and policy makers on regional innovation strategy.

By aligning clean production with key enabling technologies, it was felt that these technologies could contribute to building or strengthening competitive advantage for business growth.

The KET4CleanProduction project addresses clean production challenges by promoting the use of advanced manufacturing technologies and relevant key enabling technologies (KET) by achieving following objectives:

- Reaching out to manufacturing SMEs across the EU-28, with the support of the Enterprise Europe Network (EEN),
- Raising awareness on the potential of clean production innovation for increasing product quality, productivity and environmental performance,
- Facilitating SMEs connectivity to KET TC into joint project proposals for micro grants.

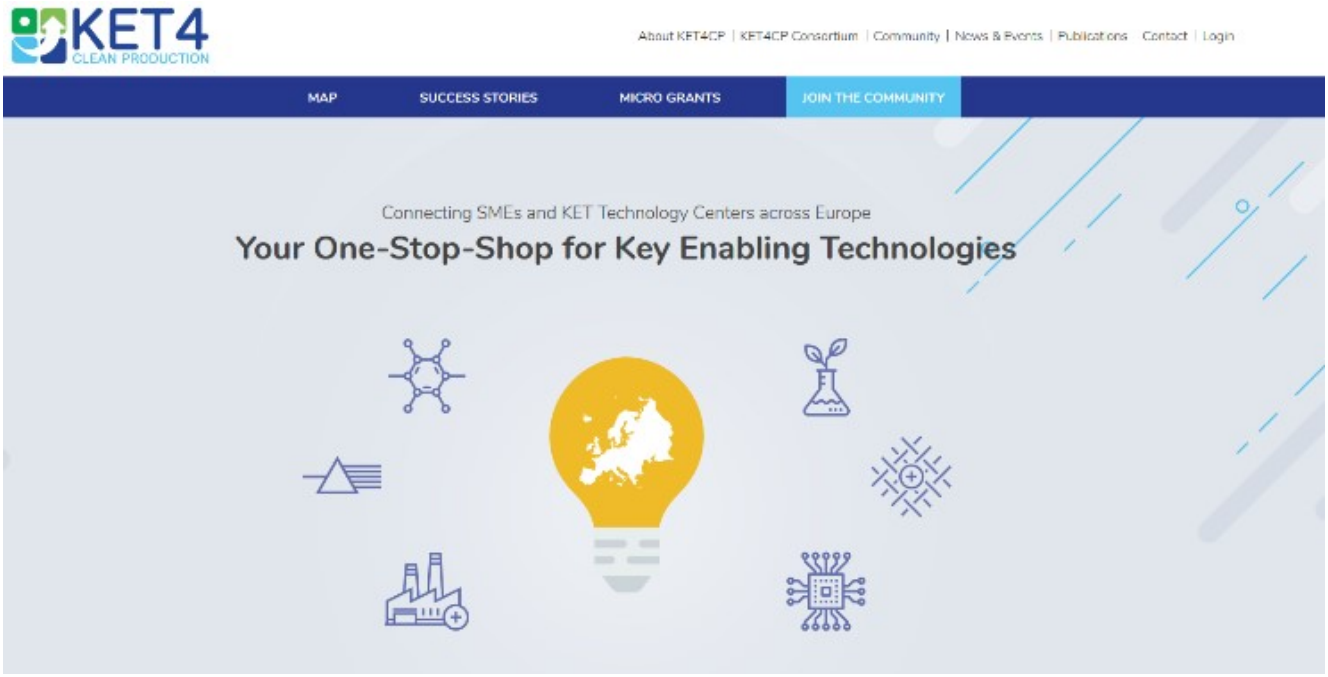
Through this process partners from 18 different countries were brought together

to represent two main groups:

- Premier-class EU-based technology infrastructures in the field of Key Enabling Technologies (KET), and
- EEN organisations in countries with a dependence on manufacturing and difficulties with KET access.

More detailed information on the project is provided on the web-platform that serves as an online one-stop-shop access for the relevant stakeholders (Figure 1).

Figure 1: Online platform as one stop shop eco-system for clean KET based production accessible via https://www.ket4sme.eu/



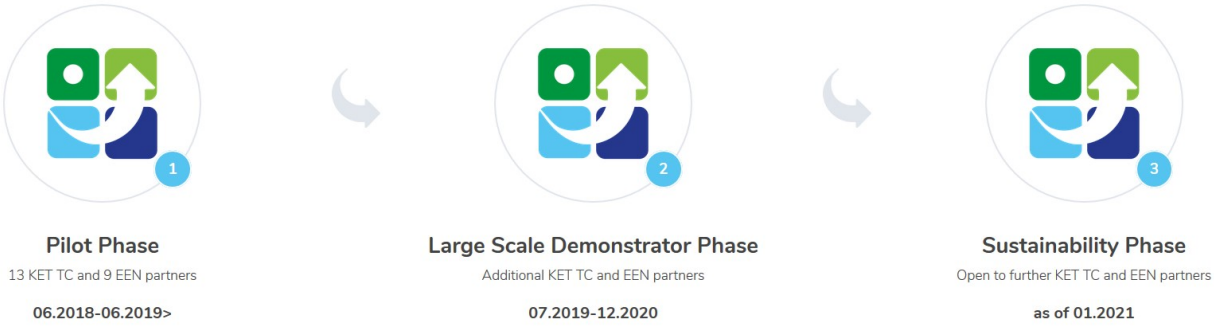
To explore the synergies of KET4CleanProduction project with RIS3 implementation, the following Table 1 aims to describe individual projects objectives and characteristics in their relation to RIS3 goals.

Table 1. KET4CleanProduction – alignment with RSI3 gaols

RIS3 Goal	KET4CleanProdcution
1. A vertical and non-neutral logic of intervention	The project has a non-neutral logic of intervention by aiming at establishing an open innovation eco-system in a specific vertical priority, clean production. The support of the actors with the micro grant schemes is therefore only for the cooperation projects that are in compliance with the defined vertical logic of thematic prioritisation.
2. An entrepreneurial discovery process where market forces are kept working	The opportunities for collaboration within the project are discovered by entrepreneurial process. This happens while private sector together with the KET TCs are generating information about new activities, which through success stories on implemented projects are being jointly identified and explored. Through an external evaluation committee for the micro grants and monitoring of an overall project implementation opportunities are being assessed empowering those actors who are more capable of realising this potential. Discovery part in the project and micro grants - builds a basis for the variety of innovative ideas in a specialised area that generates knowledge about its future economic, market and social value.
3. An interactive process between policy and the private sector	The project aims to engage policy makers and business (including technology centres and business associations, such as Enterprise Europe Network, e.g. together with its thematic sector groups) to discuss the relevance of clean production through different communication and stakeholder motivation workshops and events. This interaction is also seen not as a single activity but rather as a long-term dialogue with different direct and indirect forms of engagement.

RIS3 Goal	KET4CleanProdcution
4. An activity - as the right level of intervention	The project generates a number of new activities, which could show potential and lead to scaling up of single activities orproducts. Here are some of these activities, which are later discuss further in Table 2: - Cooperation projects between SME and at least 2 KET TC on the transnational level. - Engagement of a new brokerage partner, business support organisations, such as Enterprise Europe Network. - Cooperation and identification of complementarities between KET TCs with the aim to deliver a more qualitative and innovative input. - Online platform and automatic matching tool through which technological needs could be identified and bridged. - Capacitate KET TCs from countries with low KET index with countries with a higher one. - Strengthen regional EU specialisation technological domains. - Opportunities to SMEs to identify a competent partner outside of their region/ country.
5. An experimental nature of policy.	The experimental side of the project is presented through the three phases of projects implementation: Pilot, Large Scale Demonstrator and Sustainability (Figure 2). The existence of these phases enables first the project partners, but also the engaged stakeholders, to experiment, test and learn different new activities. Internal quality check within the consortium and external one by engaging evaluation committee with the project officer at the European Commission, which is done to maximize the values from the activities.

Figure 2: Phases of KET4CleanProduction



Beyond that, a more precise look is taken on the **activities** of the project, which are considered as the right level of intervention by RIS3. This is done by looking at the activities through the prism of three main characteristics in terms of RIS3 (Table 2).

Important to highlight, that first, the **project** itself can already be considered as an activity that facilitates RIS3 implementation. Second, also a number of **initiatives developed and promoted within the project** serve as an inspiration for the activities supporting RIS3 implementation.

Table 2. Characteristics of activities promoted by KET4CleanProduction

Characteristics	Different stakeholder groups	Various administrative levels of engagement	New activity types
Project overall	The project engages at a number of different target groups across Europe and beyond: - SME - KET TCs - EEN and BSO - Policy makers An international pool of experts in the evaluation of clean production related micro grant proposals is also established.	The project promotes the debate on several levels: EU, national and regional, and which is not restricted to the European Union, but is also open to the H2020-associated countries. Beyond that the engagement takes place not only in physical/direct presence but also online.	The specific new activity types, which are being developed by the project include e.g. i) an online platform with an automatic matching tool and an eco-system that aims to serve as a one-stop-shop for KET TCs and SMEs; ii) practical illustration of key enabling technologies and their application's opportunities in the private sector; iii) capacity building for KET TCs through collaboration with other KET TCs from countries with high KET index; iv) giving opportunities to SME to find a competent partner beyond their regional/national borders.
Initiatives within the project			

Characteristics	Different stakeholder groups	Various administrative levels of engagement	New activity types
a) Micro Grants funded under the project (value of 50,000 EUR)	One of the conditions for the micro grant joint submission by SME in collaboration with at least 2 KET TCs. Support to collaboration between KET TCs in the process of identifying the right match for the SME needs.	The collaboration projects under micro grants should be transnational. Also evaluation of micro grant proposals includes experts from different levels.	The new activity types are the ways the KET TC can approach and discuss the company needs in order to find the right counterpart. It is also a new way that EEN could offer their activities for SMEs and KET TCs in their regions.
b) Online platform and automatic matching tool	Aims to bring stakeholders form different target groups (SME, KET TCs and EEN) by opening space for collaboration.	The matching tool together with the profiles of the stakeholders will include transnational representatives.	Automatic matching tool is based on the capacities enabling fast and easy identification of the potentially interesting partners for KET TC but also for an SME.

Conclusions

The given example, which is EU funded project KET4CLeanProduction, shows that successful implementation of RIS3, might not require a ´reinventing the wheel´. Rather, it can focus on exploring existing opportunities in the eco-system that align with RIS3 goals. The identification of the existing activities can then be

used to develop RIS3 initiatives.

Based on our experiences working in this field we therefore make the following suggestions to anyone undertaking to implement a RIS3 strategy:

1. Screen for existing programmes and initiatives that are
    1. aligned with RIS3 goals
    2. Are already developed and can stimulate the Entrepreneurial Discovery Process.
    3. Share three key characteristics:
        1. Include different stakeholder groups;
        2. Operate at various levels of engagement

- Involve different activity types.

2. Finally these initiatives should be built on constant curiosity, experimentation and the exploration of new opportunities stemming from identified domains and activities.

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