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Smart specialization concept and the status of its implementation in Romania

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Abstract

Smart specialization, a relatively new concept, has been actively promoted as an important tool for the Europe 2020 Strategy. It stands as a key solution for avoiding dissipation of the EU research funds and for focusing the research, innovation, human and financial resources on those innovative sectors which are highly performing, socio-economically important or attractive for investors. Given the novelty and complexity of this concept, more theoretical and methodological consideration should be given to further concept clarification, for the use of policy makers and for its effective implementation in various countries, each of them with its R&D and innovation background and economic context. This paper aims to survey the literature of the field in order to relieve theoretical and methodological elements addressing their application in Romanian context, with an assessment of implementation opportunities and of necessary instruments, according to Innovation Union objectives.

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1. Smart specialisation - a new concept and instrument of the 2020 EU Strategy

The concept of “smart specialisation” is a relatively new one, set up from the need for valuable solutions in

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order to diminish the gap between EU and its counterparts. It was launched between 2007 – 2008 by a “smart”
team of economists “Knowledge for Growth Group” that provided, at the request of Commissioner Janez
Potočnik, a high-level advice regarding the reinvigoration of the Lisbon Strategy. In their first report, European
Commission, 2008, the authors mentioned: “A critical issue for most regions in Europe is therefore to succeed
in particularising their knowledge base; achieving what we call a ‘smart specialisation’ process”, p.14. At least,
three of the nine studies elaborated in this respect, are focused on different aspects of smart specialization,
such as: the concept, dilemmas, opportunities and risks for the European Research Area, the relation between
technologic specialisation, R&D specialisation and smart specialisation, Foray and Van Ark, 2007; Foray,

Since 2008, this new approach has been very quickly and extensively developed. Moreover, it has been so
widely embraced by scientific experts and applied by policy makers at the national and European level, that it
astonished even the concept’s architects. In a recent document, they mentioned: “Such a success story in such a
short period of time is a perfect example of ‘policy running ahead of theory’. They consider that there is a
growing gap between the policy practice and the theory and that the theoretical framework is too modest to
guide its application, Foray, David and Hall, 2011. Other authors express, as well, the lack of theoretical
background for effective methodological guidelines and application solutions. “The concept of smart
specialisation and, in general, smart policies is attractive but has various practical difficulties. It assumes that
we have criteria to judge which specialisation is smart and which is not and consequently which targets are

The clarification of all relevant theoretical and practical issues associated to “smart specialisation” is very
important, given the high complexity of its implementation process. The policy makers need assistance from
academic community in order to fully understand the content and the application options, to design and apply
effective and relevant “smart” tools for the assessment and measurement of the “smart” potential of a region, of
the real opportunities to support new competitive areas, and to integrate these new opportunities into the
existent Sectorial structure.

One of the future theoretical and methodological developments of smart specialisation is conceiving a
relevant indicators system and adequate methods for the assessment of its operationalization progress. In the
experts’ opinion expressed very recently, “the challenge for the next step of smart specialization studies is to
launch a pilot study based on existing statistics to demonstrate that smart specialization is measurable and that
aggregate statistics can be produced”. The starting point is to propose a provisional framework of indicators
that should be discussed, improved and tested, David, Foray and Hall, 2012.

In our opinion, the indicators system may consist of:

- Indicators describing the current research and innovation potential of the region and the level of R&D and
  technologic specialization. In this case, we could build on already existent indicators such as patents,
  publications, RDI expenditures, RDI human resources, new products and technologies, etc;
- economic indicators that may reveal an original industry, be it new or traditional, but with relevant
  possibilities of development on the background of research and innovation and with good perspective such
  as predictable market share, turnover, productivity level, etc.;
- indicators for the assessment of the cooperation level between the specific R&D sector and the region’s
  business environment, of the opportunities for synergic relations with other actors, e.g. number of co-
  inventions, co-publications, cooperation agreements, shared projects, spin-off companies, public-private
  partnerships, clusters, etc..

Among various and valuable investigation methods, we mention statistical surveys, SWOT analyses,
foresight exercises, etc. The smart specialisation concept is considered an answer to the imperative of avoiding
the dissipation of limited resources in order to reveal the advantages that can boost up the economy of a region
or country through knowledge creation or exploitation. Successfully applied, it represents a chance for all regions - and especially for those of the new member states, even the least RDI intensive ones - to capitalize on the specific values and original features of their knowledge base, and to become competitive. It involves an “entrepreneurial discovery process”, as well as a process of “co-invention of application” Foray, 2009 that may turn every region into a “good follower” Foray, 2012 Often, this is achieved through the absorption and exploitation of the knowledge and technology stock already created by the enterprises with capacity of entrepreneurial discovery.

The “entrepreneurial discovery”, the key element of smart specialisation, is considered a bi-directional process, bottom up and top down, in which the main stakeholders and factors of innovation, research centres, universities, enterprises, private or public, are expected to identify the most promising areas of specialization within a member state or a region, as well as the barriers in the way of innovation from the public and private sector. Also, they look into the regional knowledge base to find the less exploited valuable knowledge emerged from research projects and innovative ideas that may be turned into new goods and services that lead to higher competitiveness or to improved managerial methods at different stages Foray, 2012. Moreover, the priorities must be decaled through a process of identification of the areas in which research and innovation may contribute to create internal capacities and interregional competitive advantages, taking into account the context and specific conditions of the regions or countries David, Foray, Hall, 2012; McCann, 2012.

The relation between R&D and innovation resources and sectoral structures, the synergies between the already existent and the new activities, the externalities due to the multiplication of “entries” in the new activities, agglomeration, the need for compensatory incentives for risk-takers are considered valid ingredients and options for smart specialisation Forey et all, 2011, 2012.

Smart specialization has already become a general strategy, with commitments from major decision making individuals to instate them into policies and specific strategies. Even though practice is ahead of theory, meaning that in Europe and other countries strategies of smart growth or platforms of smart specialization have already been elaborated, it is necessary to refine the theory and to choose the adequate data base that would help to clarify some concepts and perfect the operationalization of this concept, to evaluate the possibilities of implementation and also the means to monitor and coordinate it.

2. The regional dimension of the Smart Specialization concept – a new base for the recent strategies in the European Union

In the context of Europe 2020 Strategy, of the major objective of „smart growth” and of the initiative „A Union of Innovation.” the European Commission encourages national and regional authorities around Europe to elaborate Strategies of Regional Development and Strategies of Research and Innovation based on the concept of smart specialization. The goal of these strategies is to improve the use of the Structural Funds of the EU, by investing in prioritary areas and to ensure a certain synergy between the different communitary policies, between national and regional, or private and public investments. On the 23rd of June, 2011, the Commission launched the “Smart Specialisation Platform” as another step towards the objectives set by the Member States in the R&D field, as part of the Europe 2020 Strategy.

This platform is aiming to support regions of the Member States in better defining their research and innovation strategies, in assessing their specific research and innovation strengths and weaknesses and to develop on their competitive advantage. It concentrates expertise from universities, research centres, regional authorities and business and, therefore, it depends on a strong partnership among these actors. The Commission observed a relative lack of vision in setting R&I priorities in Europe: sometimes either the priorities are not clearly defined, or they are simply copied from one region to another. Therefore, each region should identify its best assets and R&D potential in order to concentrate its efforts and resources on a limited number of priorities where it can really develop excellence and compete in the global economy.
A Strategy of Smart Specialisation RIS3 implies indentifying the characteristics and unique qualities of each region, underlining their competitive advantages, involving the stakeholders and concentrating regional resources for the support of innovation and entrepreneurial Excellency. Also, it consolidates regional systems of innovation, maximizing the flux of knowledge and spreading the benefits of innovation throughout the whole regional economy. It is important to mention that smart specialisation ensure a more effective and complementary use of EU investments in the regions and help leverage private investments towards the regions' areas of specialisation Del Castillo, J., Barroeta, B, Paton J, 2012.

As a part of the Cohesion Policy of the EU for 2014-2020, The European Committee proposes that smart specialisation be a precursory condition, the so called “ex-ante conditionality” of the planification process of the future financing cycle, 2014-2020. The conditionality written in the RIS3 Strategy, requires from the member states of the EU and their regions, an ex-ante identification of the most adequate specializations for their potential of innovation. This should support the process of “entrepreneurial discovery”.

3. The strengths and weaknesses in implementing Smart Specialisation in Romania

3.1. Strengths

At national governance level, good premises and new opportunities for stimulating determinants of smart specialization came forth this year 2012. The National RDI Strategy 2014-2020 is based on smart specialisation, defining the priority areas that are to receive the 2% of GDP targeted for R&D, the incentives designed for increasing the contribution of the private sector to the RDI funding, the specific means for stimulating the public-private partnerships.

The “Partnerships in Priority Fields” National Programme, aiming to stimulate partnership between different R&D and innovation entities that could cooperate in priority fields is also an important instrument for stimulating smart specialisation UEFISCDI, 2012a. In July, 2012, two new financing instruments have been set up: High-Tech Export Stimulation UEFISCDI, 2012b and Developing Products, Systems and Technologies UEFISCDI, 2012c within The National Innovation Programme. The first sub-programme, aims at improving the competitiveness of the Romanian high-tech products and technologies and the second is intended to improve the technologic and economic performance of Romanian companies through financing the enterprises with the capacity of turning ideas into innovative products and technologies, with real market potential.

The legislative package set up in 2011 also smoothed the path for smart specialisation, as it is focused on key issues that smart specialisation relies on, such as research appraisal, universities and R&D units acknowledgment, institutional funding, evaluation and management of projects and national programmes funded through the National R&D and Innovation Plan, the performance of the Romanian educational system. Another impetus is given through the new perspective of the National Agency for Scientific Research policy that brings forward new initiatives, e.g. vouchers for innovation; the elaboration of a National Innovation Strategy; the development of a National Strategy and programmes for smart specialisation in the near future, based on the instruments adopted within the Joint Assistance Programme intended to support Projects in European Regions during 2013-2020; the improvement of the legislative framework regarding competitiveness poles and clusters.

At the regional level, one may notice that some regions are very active and firmly committed towards achieving their specific strategies, as the importance of smart specialisation seems to have been acknowledged. The initiative “Towards an S3 strategy for the West Region. West Region, a smart specialization region” intends to assess the regional economic competitiveness, the smart specialisation tendencies and niches for sectors like ITC, Automotive, Construction, Agro-food, Energy efficiency, as well as for research expertise in machine building, welding and material testing, and chemistry. These specialisation areas were identified through thorough analyses of the regional potential of each sector of the West Region.
Applying the European pattern of Smart Specialisation platform, the North-West Regional Development Agency launched the website www.politicaregionala.ro, which represents a platform for the promotion and debate of the regional development policies in all eight Romanian development regions. It aims to improve the information and participation level of the stakeholders to the regional development in Romania, to encourage the best practices sharing and interregional cooperation. This niche website would provide value added news for the national and international public, releasing information, opinions and comments of regional, national and international interest and would centralize regional information sources.

Technologic specialisation, captured by the “high-tech patents” indicator, may also underpin smart specialisation. A recent analysis based on the data of Romanian regions regarding the number of patents and high-tech patents, filed for per million capita per each research field, shows a pattern of technological specialisation. Bucharest-Ilfov region is specialized in the ITC, information and communication technology. ITC measurements outline, also, the Western and North West regions. Specialisation in the area of bio technologies is most remarkable in four regions: Bucharest-Ilfov, North-West, North-East and Central region. The number of applications for high tech patents confirms the dominant position of Bucharest-Ilfov region, followed, at a great distance, by West and North West regions.

The region of Bucharest Ilfov is, also, specialized in computers and communication technology, while the Western region displays higher specialisation in computers and semiconductors, and the North West region, in computers and genetic engineering. ITC prevails in the Southern region, and microorganisms and genetic engineering in the Central region, Goschin, 2012. The industrial policy based on innovating clusters is another good premise for smart specialization. There are thirty three innovating clusters in Romania, built in different economic sectors, automotive, IT&C, aviation, mechatronics, electronics, maritime, agro food, and sustainable energy sources.

3.2. Weaknesses

According to the Union Innovation Scoreboard 2011, Romania is considered a “modest innovator”, ranking below the EU average for all the indicators that compose the Summary Innovation Index. Regarding the Human Resources involved in RDI, it ranks the 26th among the 27 member states. As far as the quality of the research system is concerned how much open, excellent and attractive it is, it ranks the 26th; regarding Finance and support – the 22nd; Firm investments – the 13th; Linkages and entrepreneurship – the 25th, Intellectual assets – the 27th; Innovators – the 23rd; Economic effects – the 16th European Union, 2012.

On the other hand, there are considerable interregional gaps regarding the potential for smart specialisation, due to differences in knowledge generation and it dissemination by research institutes, innovation centres, educational units etc as well as to knowledge application and exploitation factors by business sector. These two main categories should interact and endow each region with a specific profile for the research-development and knowledge application pattern. The Bucharest – Ilfov region seems to have the highest R&D and innovation potential.

According to the EUROSTAT data released in 2011, Eurostat Database, 2011, this region ranks the first regarding the share of total intramural expenses for research and development in GDP, the share of researchers in total employment, the share of employment in high-tech sectors in total employment, the share of human resources employed in science and technology in total active population, etc. This region also concentrates the highest number of universities and research centres, most of which being engaged in active cooperation within the National R&D Programmes, such “Partnerships in Priority Areas” Programmes.
4. Conclusions

The issue of this paper is a new one that has not been approached yet in the Romanian literature. It is attempting to bring theoretical, methodological as well as practical insights to the matter of smart specialization and to identify and put forward new challenges to the Romanian scientific community as well as policy makers. Based on a literature review, this paper addresses some conceptual elucidations and underlines the necessity to differentiate between the concept of smart specialization and other related concepts, such as industrial, technological or R&D specialization. On the other hand, it depicts the conditions and determinants of smart specialization implementation. Smart Specialization strategy, appropriately implemented, might represent an important instrument for an efficient and effective resources allocation, which would turn to good account the original, unique and valuable assets of the national and regional knowledge base. As there is not, yet, an indicators system for the evaluation of smart specialization adopted within EU, the authors suggest a general indicators system, comprising three indicators groups:

- indicators describing the current research and innovation potential of the region and the level of R&D and technologic specialization;
- economic indicators that may reveal an original industry, be it new or traditional, but with relevant possibilities of development on the background of research and innovation and with good perspective;
- indicators for the assessment of the cooperation level between the specific R&D sector and the region’s business environment, of the opportunities for synergic relations with other actors.

With regards to the premises of smart specialization implementation in Romania, this paper identifies and evaluates the national and regional background, with its specific strengths and weaknesses, with its barriers that need to be overcome in order to successfully achieve this desiderate. Beyond official documents and strategies that Romania has committed to follow and implement towards smart specialization, beyond the favorable position the Bucharest-Ilfov region enjoys, there are, still, important hindrances that most regions have to surpass. They need to find viable solutions to increase their innovative performance and to help Romania get over its “modest innovator” status among the EU member states. The effectiveness of the research-development and innovation system, of the technologic specialization represents important determinants that draw the performance map of the Romanian development regions. Left oversight, they will significantly slow down the smart specialization process.

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