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+ | SMART SPECIALIZATION CONCEPT AND ITS IMPLICATION FOR REGIONAL DEVELOPMENT IN NON-EU COUNTRIES

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Abstract

The main objective of this research is to analyze the smart specialization approach of the European Union and the innovation policy approach of China. Through an analysis of publications, as well as official documents of the European Community, it was possible to identify milestones and key factors that influenced innovation policy in Europe. Smart specialization is a place-based approach, which means that it draws on the assets and resources available to regions and Member States and their specific socio-economic challenges to identify unique opportunities for development and growth (JRC, 2018).

The study analyzes the challenges Ukraine faced in the first stage of smart implementation of specialization, such as misunderstanding of the concept by different Ministries, low innovation policy creation capacities, lack of relevant data and lack of will. of the business sector. At the same time reviewing the concept of specialization in China deducing that there is a certain degree of overlap of specific industries in the provinces. The provinces tend to choose between as many priorities as possible and this can lead to duplication of efforts, contradicting the idea of smart specialization. Therefore, greater coordination between the provinces is needed to better explore their strengths and improve the allocation of money in R&D and innovation infrastructure and to achieve more synergies in China's development.



The research concludes that one of the key points of the smart specialization process is the enterprise discovery process. However, implementing smart specialization throughout the European region reveals challenges for many less developed regions, which lack excellent research facilities and the necessary skills.

Keywords: Smart specialization, Innovation, European Union.

Resumen

El objetivo principal de esta investigación es analizar el enfoque de especialización inteligente de la Unión Europea y el enfoque de la política de innovación de China. A través de un análisis de publicaciones, así como de documentos oficiales de la Comunidad Europea, se logró identificar hitos y factores clave que influyeron en la política de innovación en Europa. La especialización inteligente es un enfoque basado en el lugar, lo que significa que se basa en los activos y recursos disponibles para las regiones y los Estados miembros y en sus desafíos socioeconómicos específicos con el fin de identificar oportunidades únicas de desarrollo y crecimiento (JRC, 2018).

El estudio analiza los desafíos que enfrentó Ucrania en la primera etapa de la implementación inteligente de la especialización, como lo fue el malentendido del concepto por parte de diferentes Ministerios, capacidades de creación de políticas de innovación bajas, falta de datos pertinentes y falta de voluntad del sector empresarial. Al mismo tiempo revisar el concepto de especialización en China deduciendo que hay cierto grado de superposición de industrias específicas en las provincias. Las provincias tienden a elegir entre prioridades tantas como sea posible y esto puede conducir a la duplicación de esfuerzos, lo que contradice la idea de especialización inteligente. Por lo tanto, se necesita una mayor coordinación entre las provincias para explorar mejor sus fortalezas y mejorar la asignación de dinero en infraestructura de I+D e innovación y para lograr más sinergias en el desarrollo de China.

La investigación concluye que uno de los puntos clave del proceso de especialización inteligente es el proceso de descubrimiento empresarial. Sin embargo, la implementación de una especialización inteligente en toda la región europea revela



desafíos para muchas regiones menos desarrolladas, que carecen de excelentes instalaciones de investigación y de las habilidades necesarias.

Palabras clave: Especialización inteligente, Innovación, Unión Europea.

Innovation is a cornerstone of competitiveness and a source of economic growth in many countries (Rosenberg N., 2004). It forms the basis for industrial modernization and upgrading of the economic structure for both developed and developing countries. Once practitioners recognized the role of innovations and inventions, innovation and S&T policy became a significant part of public policy in many countries that wanted to boost economic development or at least keep their positions on the global map.

At the same time in 1980s the perception that innovation flourishes in *sites with a concentration of talent, knowledge, and resources* increased (Aubert J.-E. et al, 2010). In turn, the focus of innovation policy was shifted towards territorially decentralized innovation policy initiatives. In the EU, it was implemented through a number of programs and stressing regional dimension in activity of different funds and other policies, which finally evolve

into so-called smart specialization approach.

In Ukraine, regional dimension in innovation policy is being reinforced now as the decentralization reform has been recently launched. As Ukraine is neighboring country to the EU signed the DCFTA, it should harmonize own policies in many spheres with the EU ones. The same should be done for innovation and industrial policies.

Therefore, ***the aim of the paper*** is to shed light on the EU approach to innovation policies, namely regional ones, with regard to challenges in its implementation and China's innovation policy approach. To achieve the aim of the paper following tasks were set up and planned to be solved:

- To study evolution of innovation policy in Europe in order to identify reasons for emerging smart specialization concept;
- To identify key features and differences of smart specialization strategies and regional innovation strategies;



- To reveal challenges which less developed in terms of innovation regions face implementing smart specialization approach;
- To analyze the process of smart specialization implementation in Ukraine;
- To identify possible areas for implementation of smart specialization approach in China

1. Brief history of the EU S&T and innovation policy.

Smart specialization approach has not emerged from scratch and the EU has quite long history of innovation (and science and technology) policy evolution. Analysis of a number of research publications as well the official documents of the European Community, let us to identify milestones and key factors that influenced innovation policy in Europe in different decades since 50-s of the last century till now.

The regional dimension of innovation policy became more and more popular in 80-s, as there were evidences that "...innovation flourishes in sites with a concentration of talent, knowledge, and resources" (Aubert J.-E. et al, 2010).

Nevertheless, real shift towards regional innovation policies was performed in 90-s. It was forced by increasing inequalities across European regions. In 1990-1993 the European Commission developed and implemented Community initiative (EEC) concerning regional capacities for research, technology and innovation (STRIDE). It was designed to increase the contribution that the Community's RTD policies could make to achieving greater economic and social cohesion within the European Community. STRIDE was the subject of joint financing by the Member States and the Community. In eligible areas, the total contribution by the European Regional Development Fund (ERDF) and the European Social Fund (ESF) during the 1990-1993 is estimated at ECU 400 million. Loans from the European Investment Bank (EIB) and the ECSC resources were also available (EEC, 2014).



2. Birth of smart specialization concepts: reasons, idea, implementation.

After the STRIDE initiative, the European Commission facilitated development of regional innovation strategies. These strategies were considered as a method for developing regional policies in the area of innovation, based on the assumption that it was not only the presence of technological know-how that is important, but also the business climate and the level of cooperation between the stakeholders (RIS, 2014). The European Commission implemented a project on Regional Innovation Strategy (RIS) pilots to help regions to embrace innovation as part of their economic development activities and to boost the innovation capability of those regions of the EU which were lagging behind the innovation performance of the most advanced 'core' regions. Within the project EC financed up to 50% costs of RIS development.

The initial RIS pilots were designed to:

- Redefine policy frameworks and instruments for innovation;
- Focus on the needs of firms;
- Be based on public-private

partnerships and involve the key regional 'players';

- Have a demonstration character that would allow the policy actions to be tested;
- Exploit inter-regional cooperation networks;
- Embed a learning process amongst regional actors that would help build a consensus around innovation as a key driver of regional growth and competitiveness.

The pilot regions were assisted by the Directorates on regional development and on technology development and a network of experts to develop their strategies over, usually, two-years of research, consultation and policy development.

However, effectiveness of those RISes was questionable as they showed (Kutsenko E., 2015):

- Lack of interagency interaction at different levels of governance;
- The absence or neglect of the critical mass / opportunity factor of the regions and the focus on fashion topics / prestigious projects;
- Actions and measures mainly in the field of R&D, innovation and



competence development, rather than in order to stimulate demand and access of enterprises to markets;

- Focus on traditional industries, not on emerging and rapidly developing industries.

The need to rethink RIS became obvious, and in mid of 2000s D. Foray proposed the concept of smart specialization. Smart specialization is an innovative approach that aims to boost growth and jobs in Europe, by enabling each region to identify and develop its own competitive advantages. Through its partnership and bottom-up approach, smart specialization brings together local authorities, academia, business spheres and the civil society, working for the implementation of long-term growth strategies supported by EU funds.

Smart specialization is a place-based approach, meaning that it is built on the assets and resources available to regions and Member States and on their specific socio-economic challenges in order to identify unique opportunities for development and growth (JRC, 2018). Therefore, **regional research and innovation strategies for smart**

specialisation (RIS3) are integrated, place-based economic transformation agendas that do five important things (Foray D. et al, 2012):

- They focus policy support and investments on key national/regional priorities, challenges and needs for knowledge-based development, including ICT-related measures;
- They build on each country's/region's strengths, competitive advantages and potential for excellence;
- They support technological as well as practice-based innovation and aim to stimulate private sector investment;
- They get stakeholders fully involved and encourage innovation and experimentation;
- They are evidence-based and include sound monitoring and evaluation systems.

The EU experts also developed quite detailed guidelines on developing RIS3. The process consists of 6 steps, which will be elaborated in more details during presentation (Foray D. et al, 2012):

1. The analysis of the national/regional context and potential for innovation. This stage entailed so called



entrepreneurial discover process complemented by analysis of major regional strengths and weaknesses, identifying any bottlenecks of the innovation system and key challenges both for the economy and the society. The idea is to identify areas of smart specialization based on competitive advantages of the region in comparison in national and international context. The process should rely on detailed statistical data on economic development, innovation, research potential as well as on qualitative data and opinion of entrepreneurial actors, including SMEs and newly established business, which participation is crucial for smart specialization strategy development. It worth to say that Joint Research Center has already developed techniques on performing quantitative analysis. It is recommended to use data on number of enterprises, valued added, employment as well as on innovation activity breakdown on the most detailed level of industry classification. Meanwhile the time series should be at least 5 years.

2. The set-up of a sound and inclusive governance structure. This step implies establishment of governance system for smart specialization strategy development and implementation which ensures broad participation and involvement of all main stakeholders. Also, it is important to include “people or organisations with interdisciplinary knowledge or proven experience in interaction with different actors, and who can hence help moderate the process” (Foray D. et al, 2012). Initially this step is important as it should secure that all stakeholders will share the strategy. Although for China it is not very important as “rule of law” is one of key basic principles of its development, so once the vision or strategy is announced and declared by the central government it will be accepted by the society and its members.
3. The production of a shared vision about the future of the country/region. It is important to keep stakeholders engaged in the process and to mobilize them. At regional level it is recommended to use strategic goals set by central



- government or parliament.
4. The selection of a limited number of priorities for national/regional development. Those priorities should in line with existing or potential sectors for smart specialization, which enable channelling resources towards those investments that have the potentially highest impact on the regional economy. The priorities might reflect technological, sectoral or cross-sectoral priority areas. In addition, horizontal priorities should be defined. Horizontal priorities are those that involve diffusion and/or application of general purpose technologies (e.g. IT), financing of newly established business etc.
 5. The establishment of suitable policy mixes. It is important for this stage to develop the set of policy instruments and measures to implement the smart specialization strategy taking into account current state of regional development and identified priorities. JRC experts developed determined a number of policy tool with regard to common objectives, targets, type of strategy and level of STI policy making competences. It should be mentioned that achievement of smart specialization goals may require certain experimentation and piloting. From this perspective China as recognized by European scholars as the country with direct improvisation regime, which allows competition among regional administrations but also assumes strong central power (Radosevic S., 2018).
 6. The integration of monitoring and evaluation mechanisms. The last but not least step of smart specialization process. It is not trivial task to develop effective monitoring and evaluation system as smart specialization by its idea goes beyond one industry or sector that leads to difficulties in finding appropriate statistical indicators. JRC experts focuses on 3 types of indicators: context indicators (to compare performance of the region with other regions or state average); results indicators (should reflect success of every component and actions of smart specialization strategy implementation,); output indicators (they reflect the overall progress of undertaken actions).The monitoring and evaluation mechanism should foresee ways for



adjusting smart specialization strategy according to achieved progress and challenges occurred during its implementation to ensure achievement of goals, which also are a subject of corrections.

3. Smart specialization in less developed regions: specific features and policy recommendations.

Development and implementation of the RIS3 across European regions allowed identifying specific challenges for less developed regions, which are related to weak links between stakeholders, weak R&D base, lack of skills and so on (Rotaru I., 2015). At the same time, a number of solutions were elaborated by experts dealing with smart specialization. For instance, according to Radosevic S. (2018), one of the important solutions is to use “best matches” instead of “best practice”. It means that regions and countries should rely on experiences of those regions which face similar problems and have similar economies with the target one. From this point of view, the experience of some Chinese provinces could be quite useful for Ukraine and our regions. Moreover, smart specialization

(challenges and opportunities for Chinese provinces) is on agenda of joint work of Chinese academy of Sciences and Joint Research Center of the European Commission as a Research Framework Arrangement was signed between the JRC and CAS on 2017. According the Arrangement a joint work on comparing the innovation systems of EU Member States and Chinese provinces and the opportunities and challenges to apply the Smart Specialisation approach in China's territorial innovation policy should be completed under cooperation on **innovation eco-systems and territorial aspects** of innovation potential (JRC, 2018b).

4. Implementation of Smart specialization in non-EU countries (case of Ukraine).

Ukraine started to implement smart specialization in recent years. Actually, first mentions of smart specialization in official documents were in 2016, when the Ministry of Economic development and trade requested of National academy of Science to study opportunities to apply the concept in Ukraine. Since that time Academy



contacted with JRC and a number of information events were held in Ukraine. It was agreed to test smart specialization methodology on 3 pilot regions first and then to expand it to all regions. However, in 2017-2018 the Ministry of regional development of Ukraine, thanks to actions of an EU-sponsored project, also decided to put smart specialization as a part of regional development strategies. And there was a lack of coordination within the government on the issues, so in 2018 smart specialization was incorporated in regional development strategy legislation. By that moment the methodology had not been approved and agreed by the JRC, which was continuing their pilot actions in selected regions. So, Ukrainian regions had to start the process from scratch, under the pressure from the government and in shortage of time to organize all actions according to common EU practices. Only in middle of 2019, methodology on first steps was presented together with some statistical data, which meanwhile require a profound qualitative verification. For example, data don't distinguish between actual production sites and headquarters location, data on

innovation are based on sample survey and do not provide necessary level of representativity.

So, the process is still ongoing, and the challenge for regions now is to involve business into the process, to elaborate common vision of the future development and mutual commitments. While there are no outstanding achievements; there are some lessons which could be derived for further improvement of the smart specialization process.

Such recommendations were elaborated in details at recent paper (Gryga V., 2019). The challenges Ukraine faced in the first stage of smart specialization implementation in regions are:

- misunderstanding of the concept by different Ministries;
- competition between Ministries: Economy Development, Regional Development, Education and Sciences of Ukraine;
- low innovation policy making capacities in regions, despite of a number of EU-funded project activities to address the issue of smart specialisation;
- limited choice of possible policy



tools, no room for experimentation;

- too short time for strategy development: 6-9 month (instead of 12-24 months in EU regions);
- quality of existing statistical data and lack of access to them;
- lack of relevant data (e.g. on publications, interregional trade, patents);
- unwillingness of entrepreneurial sector to participate in the smart specialization process due to lack of trust, poor historical records on any strategy implementation, etc.

5. Applying of smart specialization in China.

To explore opportunities of smart specialization in China, first of all there is a need to shed light on China's innovation policy approach. It has already been mentioned that China uses direct improvisation approach. It is based on "rules of law" principle and specific policy making practice. It means strong link with planning period, which in medium term is 5 year, for long term is 15 years with further extensions. Currently, it is the end of implementation China's National mid and long-term program of S&T development (15th

Science and Technology Plan), which set up building of innovative society in China till 2020 and getting global leadership in S&T till 2050 through implementation of scientific and technology megaprojects and advances in strategic industries and technologies as well (Cao C. et al, 2006). Implementation of the long-term plan is based on respective national 5-years plans. Current 13th 5 years plan targeted at shift from quantity of production to its quality. Thus, focus has been shifted towards innovative development.

On the base of long- and medium-term strategic documents, Chinese government develops a comprehensive set of policies and strategic documents focused on developing of certain industries, e.g. Plan for strategic emerging industries for 2016-2020 (Yan L. 2016), National Plan for Indigenous Innovation Development (CPG, 2013), etc.

At regional level, provincial government also developed own plans and implementation measures which are based on the national ones considering specific features of the region. However, on my opinion, there is certain degree of overlapping of targeted industries in



provinces. As the list of strategic emerging industries (energy efficiency and environment, new generation of IT, biotechnology, advanced manufacturing, new energy, advanced materials and new automotive industry) and technologies is limited, provinces tend to choose among priorities as many as possible. It can lead to duplication of efforts, which contradicts the idea of smart specialization. Thus, more coordination between provinces is needed to better explore their strengths and improve allocation of money on R&D infrastructure and innovation and to achieve more synergies in developing of China.

Other issues to be tackled are related to shortcoming of the smart specialization approach. Radosevic S. (2017) identified deficiencies, which keep smart specialization from being an effective mechanism of structural change and technology upgrading:

- it neglects global value chains as levers of place-based growth;
- JRC guidelines do not explicitly consider the differences in drivers of growth across regions and countries;
- it does not featured for different institutional context and the institutional capacities;
- implementation is caught in between the requirements stemming from the experimentalist nature of smart specialization policy, and the political and administrative requirements of implementing the policy.

However, the latter one is not case of China, where piloting projects are quite popular tool in policy making.

Conclusions.

The smart specialization approach is a relatively new in the EU regional innovation policy, which goes beyond S&T and innovation domains. It was emerged due to poor performance of its predecessor, which did not fit needs of regions. One of the key point of smart specialization process is entrepreneurial discovery process. However, implementation of smart specialization across European region reveals challenges for many less developed regions, which are lacking of excellent research facilities and necessary skills. For those regions, special treatments are needed, which



include external expert support, finding “best matches” regions etc.

China has own S&T and innovation policy making approach at regional level, which often refers to directed improvisation. There are 34 provinces with different economics and innovation development levels. They are objects of interest for researchers as they demonstrated not only high economic growth, but also structural transformations based on innovations, which are in line with the smart specialization approach. Meanwhile, smart specialization approach may help Chinese regions to improve innovation performance through delivering more coordinated policy, more targeted actions, broader involvement of local businesses in policy making process etc.

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