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## **THE CONCEPT OF SMART SPECIALIZATION IMPLEMENTATION IN UKRAINE IN THE FRAMEWORK OF INDUSTRY 4.0 DEVELOPMENT**

**Igor Matyushenko**, PhD in Technical Sciences, Professor,  
**Anastasia Kornienko**, Master Student,

*Department of International Economic Relations,  
School of International Economic Relations and Travel Business,  
V.N. Karazin Kharkiv National University, Ukraine*

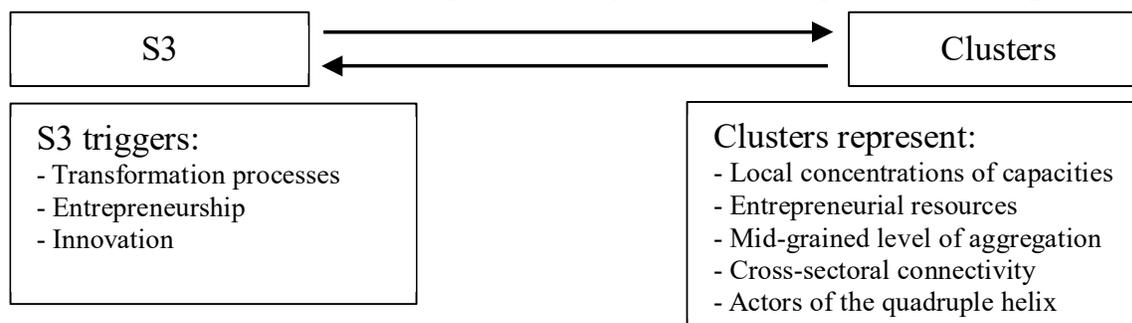
**Abstract:** *The paper draws on the up-to-date state of implementation of the smart specialization concept in Ukraine. Being a crucial factor in solving economic problems of the country, the process of adopting the new concept faces obstacles which hamper harmonized economic development of Ukraine and prevent the state from obtaining competitive advantages. The main problems in the development of smart specialization and recommendations on improving are defined. Priority vectors for development and the implementation principles are identified. In addition to it, methodical approach to the creation of the new era of regional smart specialization in Ukraine in conditions of 4.0 industry development is reflected in this article.*

**Keywords:** *smart specialization, clusters, industry 4.0, regional specialization, competitive advantages*

### **INTRODUCTION**

In the framework of regional economic development, identifying industrial transformation processes that lead to the appearance of new value chains and related industries is of increasing interest. The abovementioned processes can provide the regions with competitive advantage if they are properly supported and represent massive potentials for regions to develop and eventually to create jobs within innovative fields. The European Commission highlights that globalization requires regions to handle the transformation of existing economic structures by means of designing Smart Specialization Strategies (S3) and cluster policies.

The interplay between S3 and clusters implies an interconnection with mutual benefits between the two concepts, as is depicted in the layout below (*Figure 1*).



**Figure 1: Beneficial interplay between S3 and Clusters**

*Source: adapted by authors from Keller, M., Reingruber, I., Dermastia, M., Bersier, J. & Meier zu Köcker, G. (2018). Smart Specialization Strategies (S3) and Clusters – An Innovation Model for Transformative Activities*

As a practical result, the interaction between S3 and Clusters represents significant potential for S3 implementation.

## **MATERIALS AND METHODS**

The issue of implementing the present-day smart specialization concept is being studied by many experts, both foreign and Ukrainian scientists, viz. I. Bulkin, A. Butnik-Siversky, K. William, I. Egorov, N. Isaakova, O. Krasovskaya, Z. Lehenkari, H. Lio, B. Malitsky, N. Marulis, C. Palmberg, A. Popovich, G. Rumpf, V. Solovyov, K. Halme, G. Strohilopoulos, A. Khrebtov, Y. Shkvorets et al. At the same time, it should be noted different approaches to the many-sided nature of smart specialization enables further studying and deepening into the issue.

## **RESULTS**

The dependence on specific regional capacities in S3 emphasizes the importance of existing local resource concentrations. On the other hand, cross-sectoral causation, essential for the cluster concept, is a crucial determinant for the creation of critical mass for Transformative Activities. Moreover, clusters typically reunite the actors of the quad spiral, which is important for cooperative leadership in an entrepreneurial discovery process. Strongly conforming the definition of clusters, Foray (2014) notes that preference in the process of developing and implementing S3 should be given to a "mid-grained level of aggregation as the level at which activities group together a certain number of firms and partners that collectively explore and discover a new pathway to transformation". Finally, what is an assisting matter; clusters are unlimited to borders, but often stretched over several regions. Thus the cross-regional cooperation is often a favorable factor for creating critical mass. Adhering to this point of view, we may consider organized form of the cluster concept to be a perfect instrument in the process of S3 development and implementation. Nevertheless, clusters are also admitted as typical beneficiaries and direct recipients of S3-enhanced innovation. Indeed, according to Foray (2014) "generating a vibrant innovative cluster" is considered "a logical outcome" of S3. The whole process of establishing and thorough exploring new areas of opportunity, "will possibly form the basis for [new] local resource concentration" by sparking entrepreneurship, abundance and innovation at the cluster level. From this perspective, clusters are mechanisms of transmitting S3-enhanced innovation processes to the business level, eventually contributing to establish new value chains and create jobs in innovative fields. In the context of the policy stage, this implies cluster policies gaining from being driven by S3. This perception in pure form illustrates integrating clusters in the process of developing S3 in the sake of vast perspectives opening up for clusters in regional development policy.

As a practical result, the interaction between S3 and clusters represents a significant potential for S3 implementation. In a nutshell, involving clusters into S3 helps to identify entrepreneurial resources and areas of strategic potential. Being an intermediate link between individual firms and broader public sectors, clusters typically represent strong partnership connections, animated communities and relevant interactions between associated institutions, related businesses and suppliers. Clusters include all

relevant actors of the innovation process and provide with important information about needs, opportunities and ongoing transformation, which are all essential elements of S3. In addition, clusters are not limited to any border, vice versa, are often stretched over several regions where they can facilitate the implementation of actions through interregional cooperation. Therefore, we offer a non-standard approach of integrating cluster initiatives in the S3 process. The model is a systematic process for the regional and cross-regional identification and development of transformative activities (*TA*).

To conclude, clusters are second-to-none screws in the S3-enhanced transformation processes aimed at arising on a business level, including following benefits, such as innovation within enterprises, new value chains and innovative work facilities with considerable growth potential.

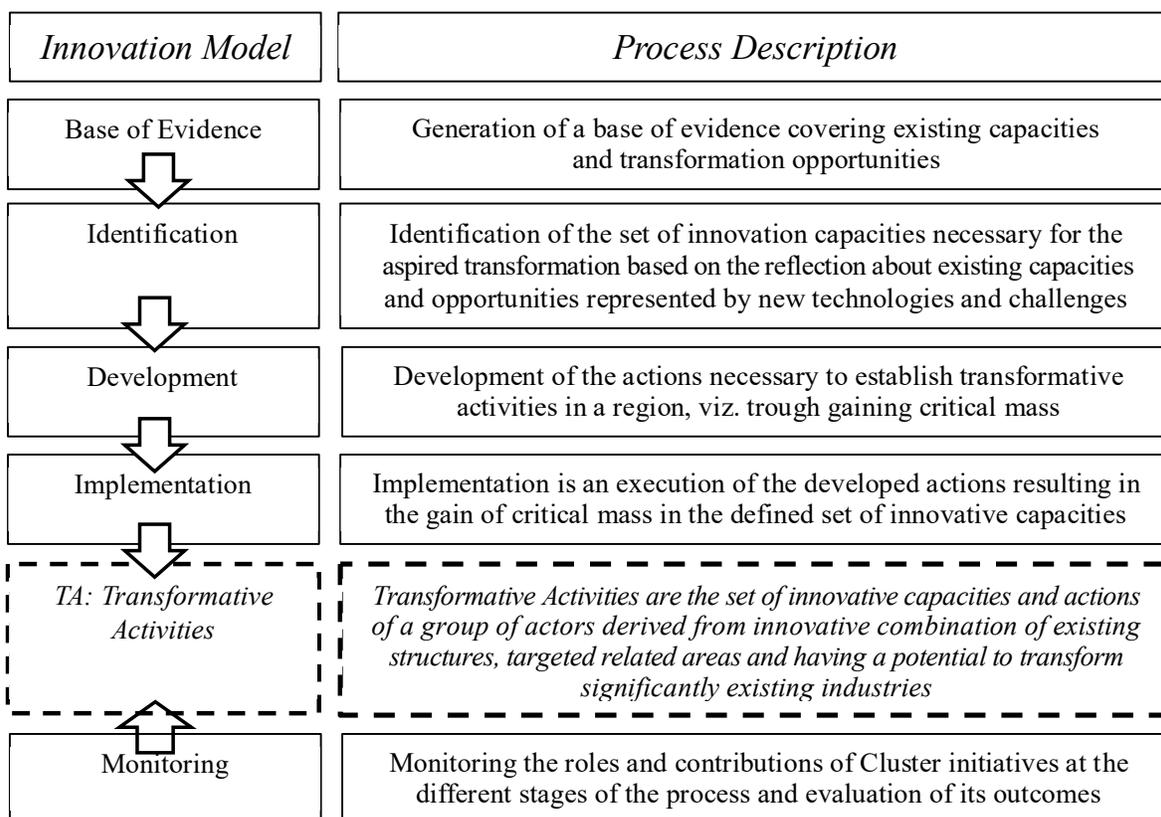
Moving to S3 implementation grade in the framework of Ukraine, it should be pointed out that the smart specialization model is a crucial stride for Ukraine since within its adaptation, unlocking the regional potential for structural and technological qualitative changes, as well as industrial modernization are becoming feasible.

Smart specialization is also of prime importance for the provision of so-called specialized diversification, which is not related to the specialization of the regional economy with the use of local-orientated competitive advantages as such, but refers to the expansion of the regional economy's ability to adapt to unpredictable changes in market conditions in future. This is important for overcoming the destructive tendencies of preserving the old industrial economic structure of the regions and the structural inertia of the regional economy, which is largely based on the practice of artificial identifying certain industrial sectors of the regions as priority and lobbying certain sectors and areas of economic activity for the governmental support. *Figure 2* depicts the implementation of transformative activities project for smart specialization.

Thus, among the competitive advantages of Ukrainian regions there are low logistic costs and developed logistics infrastructure, favorable geographical location and access to the Black Sea, production sites availability, high mineral potential, free trade agreements with the EU, EFTA countries, Canada, the CIS countries etc. Needless to say, this list is important and refers to the factors that directly influence the effectiveness of regional development. However, it contradicts the principles of identifying competitive advantages in regional economies, which in the modern regional policy are formed on the basis of smart specialization.

This list demonstrates the continuous desire to exploit the competitive advantages of the industrial age and emphasizes the tendency of state authorities to use the outdated approach to build a state regional economic policy in Ukraine that has not been used in the EU since 2010.

The outdated approach has been replaced by the concept of a new regional policy with an innovative tool for achieving the goals of regional development – *smart specialization*. Moreover, on the practical side of the issue, the emphasis on the industrial competitive advantages of regional development not only can negatively affect the quality of industrial, regional and structural policies of Ukraine, but can also stimulate further conservation of the regional economy structure, which is inappropriate due to time requirements.



**Figure 2: Transformative Activities (TA) for Smart Specialization**

*Source: adapted by authors from Keller, M., Reingruber, I., Dermastia, M., Bersier, J. & Meier zu Köcker, G. (2018). Smart Specialization Strategies (S3) and Clusters – An Innovation Model for Transformative Activities*

While European and world practice emphasizes possibilities of smart specialization to intensify the use of region industrial potentials, the idea of industrial component predominance over primary aspects of smart specialization concept is unwarrantably prevailing in Ukraine. Such an approach jeopardizes adequate implementation of regional smart specialization in general and predetermines the risk of distorting its concept to simple modernization of regional industrial potential.

Recognition of pressure of increasing external and internal challenges, taking into account their possible consequences, led to formation of a capable innovative policy of social and economic development of the state.

The *Strategy of Innovative Development of Ukraine within 2010-2020* in the conditions of globalization challenges was created to reinforce the innovation and investment model of socioeconomic development in Ukraine, to increase the efficiency of using the country's intellectual potential, all its human and natural resources, to ensure the national economy's competitiveness, to achieve sustainable development and to improve the well-being of Ukrainian citizens. Its implementation will create opportunities for Ukraine's successful advancement of knowledge-based economies and societies. As far as it can be seen, innovation component is included into the strategic tasks of the state policy for the regional development in Ukraine with enhancing competitiveness of its regions and strengthening their resource potential as a priority vector in reconstructing the economic field of certain regions.

It is a commonly recognized opinion that following this direction will allow to increase productivity of economy spheres in regions and support new types of innovative activities that will eventually increase the employment level (Matyushenko, 2016).

## CONCLUSIONS

The *smart specialization model* is a crucial stride for Ukraine since within its adaptation, unlocking the regional potential for structural and technological qualitative changes, as well as industrial modernization are becoming feasible.

Thus, among the competitive advantages of Ukrainian regions there are low logistic costs and developed logistics infrastructure, favorable geographical location and access to the Black Sea, production sites availability, high mineral potential, free trade agreements with the EU, EFTA countries, Canada, the CIS countries etc. This is important and refers to the factors directly influencing the effectiveness of regional development. However, it contradicts principles of identifying competitive advantages in regional economies, which in the modern regional policy are formed on the basis of smart specialization.

Recognition of increasing external and internal challenges' pressure, taking into account their possible consequences, led to formation of a capable innovative policy of socioeconomic development of the state.

The main tasks of the Innovative Strategic Program are:

- support of the innovative infrastructure creation;
- financial support for priority development in the regions;
- increasing the volume of competitive innovative products;
- improvement of the mechanism for promoting the commercialization of scientific research results and experimental development;
- development of the small and medium-high-tech manufacturing business;
- creating a permanent monitoring system of innovative potential and innovative infrastructure of the region;
- qualitative staff training within a progressive knowledge-based system.

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