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## **THE IMPACT OF SMART SPECIALISATION ON THE QUALITY OF GOODS**

**Abstract.** *The innovative vector of business development in the Republic of Moldova is impossible without improving the quality and competitiveness of products in the domestic and foreign markets. Of particular importance is the implementation of new innovative concepts, such as smart specialisation, designed to ensure competitiveness in the local/regional/national/international markets. Smart specialisation is a concept promoted by the European Union to express the framework and mechanisms of specialisation of innovation processes at the level of a country or region. The study aims to highlight those innovative projects and technologies, oriented towards the revolution of technologies and innovations in the market with smart quality products. Thus, positioning in the market is possible only by increasing the quality and competitiveness of goods, by forming the image of products, companies and country. It was found that for less developed regions, the main task is to achieve, through smart specialisation, a better connection between the business environment and research and development institutions, as well as with universities, which will ultimately lead (facilitate) to the production of goods that are demanded in the market, innovative products of higher quality, efficient use of resources. It was concluded that a considerable effort from all players involved (business, academia and research, authorities, civil society) is required to raise awareness of the importance of smart specialisation in improving production quality, but also on the fact that it could become part of innovative economic development policies of the Republic of Moldova.*

**Keywords:** quality, innovation, smart specialisation, entrepreneurial discovery.

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## **ВПЛИВ СМАРТ-СПЕЦІАЛІЗАЦІЇ НА ЯКІСТЬ ТОВАРІВ**

**Анотація.** *Інноваційний вектор розвитку бізнесу в Республіці Молдова неможливий без підвищення якості та конкурентоспроможності продукції на внутрішньому та зовнішньому ринках. Особливе значення має впровадження нових інноваційних концепцій, таких як смарт-спеціалізація, покликаних забезпечити конкурентоспроможність товарів на місцевому/регіональному/національному/міжнародному ринках. Смарт-спеціалізація - це концепція, що просувається Європейським Союзом для формування рамок та механізмів спеціалізації інноваційних процесів на рівні країни чи регіону. Дослідження має на меті висвітлити ті інноваційні проекти та технології, які орієнтовані на революцію технологій та інновацій на товарному ринку за допомогою смарт-спеціалізації. Таким чином, позиціонування на ринку можливе лише за рахунок підвищення якості та конкурентоспроможності товарів, шляхом формування іміджу продукції, компанії та країни. Було виявлено, що для менш розвинених регіонів головним завданням є забезпечення шляхом смарт-спеціалізації кращого зв'язку між бізнес-середовищем та науково-дослідними установами, а також університетами, що в кінцевому підсумку сприятиме виробництву товарів, які користуватимуться попитом на ринку, інноваційних продуктів більш*

*високої якості, більш ефективному використанню ресурсів. Було зроблено висновок, що необхідні значні зусилля від усіх залучених гравців (бізнесу, наукових кіл та дослідників, влади, громадянського суспільства) для підвищення обізнаності про важливість смарт-спеціалізації для підвищення якості виробництва, а також про те, що вона може стати частиною інноваційної політики економічного розвитку Республіки Молдова.*

**Ключові слова:** якість, інновації, смарт-спеціалізація, підприємницькі відкриття.

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**Formulation of the problem.** Nowadays, the processes of globalization of national economies oblige economic agents to orient technological innovation towards improving the quality of goods; so quality has established itself as a determining factor in the competitiveness of enterprises of any type.

Based on the definition of the concept of quality, which is an expression of the degree of public utility of a product or service or, in other words, reflects the extent to which the product satisfies, in all its characteristics, the need for which it was created and complies with the restrictions imposed by society, with regard to economic and environmental protection, we have come to the conclusion that high quality products meet the needs at a much higher level, are more competitive, are better appreciated by consumers, capitalize on resources at a higher level and have a higher value. Thus, an important role in the modern economy belongs to the application of innovative projects and technologies, oriented towards the revolution of technologies and innovations in international markets with intelligent high-quality products; therefore, positioning in the market is possible only by increasing product quality and competitiveness, by forming the image of products, companies and country.

To this end, efforts are needed to create systems that stimulate innovation, as well as the spirit of innovative entrepreneurial development. Efforts that can be made with the help of smart specialisation, this being an effective tool in achieving the European Strategy for smart growth, sustainable and favourable to inclusion.

**Setting objectives.** The study aims to highlight those innovative projects and technologies, oriented towards the revolution of technologies and innovations in the market with smart quality products.

**Presentation of the research results.** Smart specialisation is a concept promoted by the European Union to express the framework and mechanisms of specialisation of innovation processes at the level of a country or region.

The Organisation for Economic Co-operation and Development (OECD) uses the same notion to describe the industrial and innovation framework for regional economies, which aims to illustrate how public policies, framework conditions, and especially investment policies in the field of research, development and innovation can influence the economic, scientific and technological specialization of the region and, consequently, productivity, competitiveness and economic growth [3].

By summarizing various definitions and the context in which they are used, it can be stated that the concept of smart specialisation focuses on:

- identifying the unique characteristics and strengths of each country/region;
- identifying the competitive advantages of each region;
- identifying the cognitive specialisations that are most appropriate for their innovative potential;
- involving companies, research centres and universities to work together to identify the most promising areas of specialisation;
- co-opting stakeholders and resources around a vision focused on excellence in developing a certain field.

In the context of assessing the success of European cohesion policy, several qualitative and quantitative studies have been conducted to identify differences in approaches to smart specialisation by regions with advanced economies and developing ones. The analysis carried out in this regard was based on a study of six papers submitted by the less developed regions (GDP per capita below 75% of the EU average) and six strategic documents submitted for peer review by more developed regions (GDP per capita above 90% of the EU average) to find out if there are particularities in approaching the concept of smart specialisation in less developed regions compared to the most developed ones. Thus, it was found that for less developed regions, the main task is to achieve, through smart specialisation, a better connection between the business environment and research and development institutions, as well as with universities, which will ultimately lead (facilitate) to the production of goods that are demanded in the market, innovative products of higher quality, efficient use of resources.

At the same time, analysing the impact of smart specialisation on the economies of Central and Eastern Europe, H. Kroll (2017) concludes that a broad analysis of the current situation, in terms of entrepreneurial discovery processes, supports intuitive assumptions obtained from unofficial data (due to recent nature of launched RIS3 strategies) mentioned in the specialty literature. While political efforts seem to support the entrepreneurial discovery processes already taking place in a number of Central European countries, the RIS3 policy agenda has not yet been translated into entrepreneurial practice in many peripheral regions, especially in Eastern Europe. [4].

For countries with developing economies, such as the Republic of Moldova, D. Foray [2] recommends *co-invention*, i.e. employment of ICT technologies (or any other general technology) in order to improve operational efficiency or quality of products in a particular industrial or service sector. Co-invention of ICT applications also involves research and development, design and redesign, i.e. a series of knowledge-based activities. Smart specialisation therefore implies rejecting the principle of distinct division of labor between knowledge producers and their users. Typically, regions facing economic problems have a relatively greater need for developing innovation processes, while at the same time they face a lower capacity to absorb and employ development funds. Training and infrastructure investments remain critical for promoting development in these regions.

However, in order to break out of the „average income trap” and provide platforms for innovation programs, these regions must also develop stronger innovation systems that involve collaboration, stakeholder participation and modernization of research infrastructure, including universities. Yet, weak institutional and managerial capacity remains the main impediment to the development of such platforms and systems [6].

All these prerequisites need to be discussed and agreed between the main actors involved in the management of research and development. Recent reforms in this area in the Republic of Moldova could be an important premise for the application of smart specialisation concept in the country.

The National Research and Innovation Program for 2020-2023 (adopted by Government Decision no. 381/2019) [9] aims to take over and transfer the principles of smart specialisation. Thus, Specific Objective 1.2 *Identification of niches of smart specialisation in the Republic of Moldova for the promotion of research based on excellence in strategic areas that have relevance and impact on the economy and society* within the Program, provides for the following actions:

- Carrying out the entrepreneurial discovery process;
- Approval of the strategic priorities in research and innovation for the years 2023-2027, in accordance with the identified niche areas;
- Identification of areas for which it is necessary to create new research centres.

Starting with 2017, the Republic of Moldova is assisted by the Joint Research Centre (JRC) of the European Commission [10] in taking over and implementing the concept of smart specialisation within the national research and innovation policy. MEC is the institution responsible for the development of Smart Specialisation Strategy of the Republic of Moldova and coordinates the activity of S3 team of experts at national level.

In the framework of JRC pilot project for the countries included in the enlargement policy and neighbourhood partnership, our country benefited from the European expertise in mapping the economic, scientific and innovative potential, but also initiating

the process of elaborating the strategic framework in the area of smart specialisation.

As a result, the following studies were developed and publicly presented:

- Mapping of economic, innovative and scientific potential in the Republic of Moldova, 2017 – author Hugo Hollanders, Maastricht University [5]
- Characterisation of preliminary priority areas for smart specialisation in Moldova, 2018 – developed by SIRIS Academic (Spain) [1].

According to JRC methodology, the next step included the entrepreneurial discovery process, carried out in the Republic of Moldova.

The Entrepreneurial Discovery Process (EDP) is a transparent and bottom-up process characterized by an interactive and systemic approach, with a primary focus on the needs of the business environment, research and innovation, encouraging learning through collaboration, cooperation and partnership building, discussions based on reason-supported data and knowledge-achieved consensus.

*Since 2016, a series of actions were initiated and carried out in the Republic of Moldova in order to raise awareness of the concept and importance of smart specialisation, the impact of smart specialisation strategies on economic growth and efficient use of resources, regional development. Thanks to the support of the EU Joint Research Center, workshops were organised [7], and a team of local experts was established (one of the authors of this paper - L. Şagva is part of this team). This expert team was involved in the assessment of the state-of-the-art in the field of research-development-innovation and economic development policies, as well as their implications on economic development; the local expert group together with foreign experts also participated in the mapping of the economic, innovation and research potential of the Republic of Moldova and took part in the first entrepreneurial discovery exercises.*

Following the actions taken in the context of S3 development in the Republic of Moldova (mapping the economic, innovation and scientific potential, identifying preliminary priorities for smart specialisation), the first four national entrepreneurial discovery workshops were organized in June 2019, attended by 189 persons, including 33 representatives of public authorities, 61 persons from universities and research institutes, 65 businessmen and 30 representatives of civil society. The following potential areas of smart specialisation were identified in the workshops:

- 1. Energy:** efficient technologies, alternative energy sources, heating solutions.
- 2. Information and communication technologies (ICT):** micro/nanomaterials and electronic engineering, interoperability, open data and e-infrastructures, mobile applications, software engineering, cloud computing.
- 3. Agriculture and agricultural production processing:** advanced and sustainable biotechnologies for agriculture, sustainable agriculture, including organic, value-added processed food.

**4. Biomedicine, Biopharmaceuticals, Bioinformatics:** *biomedicine, biopharmaceuticals, bioinformatics.*

Entrepreneurial discovery process continued in 2021, with the participation of universities and research institutions, companies, groups, public authorities and civil society. The second round of entrepreneurial discovery workshops aimed to identify project ideas that would contribute to the achievement of objectives identified for each sub-domain of the four identified areas of specialization. The results of entrepreneurial discovery process have a decisive role for the design of smart specialisation strategy, as it allows the verification and specification of priority areas of smart specialisation based on consensus between all stakeholders.

Resources assigned to improving the quality of products and/or services should be concentrated in particularly selected areas related to certain types of technology, disciplines and subsystems within a sector or the intersection of different sectors.

**Conclusions.** In conclusion, one could state that implementation of smart specialisation concept in the Republic of Moldova would facilitate the process of increasing the quality of goods, thus capitalizing on the innovative potential of the country. Therefore, a considerable effort from all players involved (business, academia and research, authorities, civil society) is required to raise awareness of the importance of smart specialisation in improving production quality, but also on the fact that it could become part of innovative economic development policies of the Republic of Moldova.

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