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# IMPLEMENTATION OF THE SMART SPECIALISATION STRATEGY IN NORTH MACEDONIA

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**Abstract**

The Smart Specialisation Strategy (S3) represents a modern instrument of European industrial and innovation policy, enabling targeted and efficient development based on knowledge, research, and technological advancement. Its essence lies in the identification and promotion of economic sectors where a country has the greatest potential to create added value and achieve competitiveness in international markets.

This paper aims to analyze the theoretical foundations, objectives, and implementation mechanisms of the Smart Specialisation Strategy, as well as its application in North Macedonia. By examining national priorities and the institutional framework, the study highlights the opportunities and challenges in the process of economic transformation towards an innovative and sustainable economy.

**Key words:** *smart, specialisation, strategy, innovation, competitiveness, Macedonia.*

## INTRODUCTION

In modern economies, innovation and knowledge are key drivers of development. The concept of smart specialisation serves as a strategic tool that helps countries and regions identify their strongest economic and technological areas and direct resources towards the development of these domains. Smart specialisation represents a response to the need for structural transformation of economies, focusing on areas with the highest growth potential (Foray, 2015).
In the contemporary economic and technological context, the development of countries is increasingly based on their ability to identify and stimulate areas with the greatest potential for innovation, competitiveness and sustainable growth. In this regard, the concept of smart specialization is one of the key European instruments for strategic development, which aims to direct public policies and investments towards priority sectors in which the country has real comparative advantages. The European Union developed the Smart Specialisation Strategy as a central mechanism of its Cohesion Policy, aiming to ensure rational investment in research, development, and innovation.

The Smart Specialization Strategy (S3) for Macedonia is a systematic and analytical approach to fostering innovation, transforming the economy and strengthening the capacity for global competitiveness.

The process of creating a smart strategy includes thorough research, engaging stakeholders and assessing potential areas for growth, in order to align national resources with the most promising sectors. Its implementation is an important step towards accelerating economic development, strengthening entrepreneurship, digitalizing industries and stimulating scientific and research capacity in the country Foray, D. (2015). In addition, the S3 strategy

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increases the possibility of accessing European funds and regional partnerships, which is particularly important in the context of European integration. For candidate countries, such as Macedonia, this strategy is not only a development instrument but also a tool for alignment with European policies and access to EU structural funds. North Macedonia, as an EU candidate country, adopted this framework to enhance its innovation capacity, competitiveness, and economic sustainability.

Therefore, the analysis of the meaning, objectives and impact of the smart strategy in Macedonia is essential for understanding the direction in which the national economy is moving. The research continues by examining its importance, benefits, challenges and potential effects on the economic transformation of the country.

## SIGNIFICANCE OF THE SMART SPECIALISATION STRATEGY

Smart Specialisation is a modern European strategic approach that aims to direct economic development towards areas in which the country has the greatest potential for innovation, competitiveness and long-term growth. In the context of Macedonia, this concept appears as a necessary instrument for the transformation of the economy, especially in conditions of dynamic global markets and the need for greater integration into European innovation systems (EC, 2012).

The introduction of the Smart Specialisation Strategy (S3) in Macedonia is aimed at identifying priority sectors and technological domains that can create the greatest added value. This process is based on an inclusive and exploratory approach that involves scientific institutions, the business sector, state authorities and civil society. Through the so-called “entrepreneurial discovery process”, stakeholders actively participate in the recognition of areas with the highest development potential ( Aranguren, M. J. Et al., 2017). The importance of smart specialisation is particularly visible in the possibility of improving the efficiency of public investments. Focusing on a limited number of strategic priorities allows state institutions to direct financial resources towards initiatives that create the greatest economic and social benefits (McCann, P., & Ortega-Argilés, R., 2015).At the same time, the S3 strategy is a prerequisite for the use of European funds, especially within the framework of Horizon Europe and the EU structural funds, which further increases its relevance.

From the perspective of economic transformation, smart specialization enables diversification of production and encouragement of new technologies, which is key to increasing productivity and global competitiveness of the Macedonian economy (OECD, 2019). This is especially important in conditions of the need for modernization of industrial capacities, digitalization and transition to an economy based on innovation. Despite the positive aspects, the smart specialization process also faces challenges, including limited public awareness, insufficient research and development capacities, as well as the need for more harmonized policies at the national and local levels (Ministry of Economy of N. Macedonia, 2022). However, the successful implementation of S3 can significantly contribute to creating a stimulating environment for entrepreneurship, knowledge transfer and development of innovative companies (Radosevic, S., 2017). Therefore, the significance of smart specialization in Macedonia stems from its role as a guide for strategic economic reforms, with the potential to strengthen competitiveness, accelerate digital transformation, and prepare the country for more effective participation in European and global economic flows (EC, 2020).

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The Smart Specialisation Strategy is a long-term instrument for economic transformation, enabling efficient use of resources and promotion of innovative activity. It represents a strategic approach to economic development, based on the identification of priority areas in which a region or country has the greatest potential for innovation, competitiveness, and sustainable growth. Instead of all regions attempting to develop diverse sectors without clear focus, the S3 strategy directs attention to areas with the highest added value and growth potential, such as specific industries, technologies, or research and development sectors.

The significance of smart specialisation can be observed in several aspects:

- Identification of competitive advantages in the national economy;
- Promotion of synergy between science, business, and the public sector;
- Focusing investments on areas with the highest growth and export potential;
- Encouraging regional and balanced development;
- Supporting digital and green transformation.

In doing so, the strategy lays the foundation for a knowledge-based economy, which is a prerequisite for sustainable and inclusive development.

## METHODOLOGY & ANALYSIS

The methodology in this research is based on a qualitative approach in order to analyze the significance and applicability of Smart Specialization (S3) in Macedonia. The research uses secondary data sources, including European policy documents, national strategic materials, academic literature and relevant publications from international organizations. Within the methodological approach, three analytical techniques are applied documentary analysis – which assesses the conceptual framework, priority domains and institutional context of S3; comparative analysis – to compare Macedonia's approach with successful smart specialization models in other European countries; analytical synthesis – which brings together different data sources to draw conclusions about the significance, challenges and potential effects of S3. This research design allows for a systematic review of key aspects of the strategy and creates a basis for developing recommendations for its better implementation in the Macedonian economic and innovation system.

The analysis of Smart Specialization in Macedonia shows that the country has already identified priority areas in which there is potential for growth, such as: information and communication technologies, intelligent industries, sustainable agriculture, cultural and creative industries and green technologies. These areas have been selected based on the estimated innovation capacity, export potential and existing human resources. In addition to defining priorities, the analysis reveals several structural benefits from the implementation of S3: better targeting of public investments, which allows for greater efficiency in the use of budget funds; connecting academia and industry, in order to create joint research and innovation initiatives; encouraging entrepreneurship, especially in technological and export-oriented sectors; improving access to international and European funds, which increases financial support for innovation projects.

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However, the analysis also shows significant challenges (World Bank, 2020):

- Insufficient integration of local governments in the process;
- lack of coordination between institutions;
- low intensity of private investment in research and development;
- weak innovation ecosystem compared to the EU average.

These findings indicate that while S3 provides a strategic framework, success largely depends on institutional commitment and practical implementation of policies.

**IMPLEMENTATION OF THE STRATEGY IN NORTH MACEDONIA**

The implementation of the strategy takes place in multiple phases and involves a wide range of stakeholders. The process begins with an analysis of national potentials and export structures, followed by an Entrepreneurial Discovery Process (EDP), which entails active participation of the private sector, universities, research institutions, and public bodies.

The key implementation phases are:

1. Analysis of the economic situation and potentials;
2. Identification of priority areas for development;
3. Creation of policies and support instruments (funds, grants, research programs);
4. Institutional coordination and cross-sectoral collaboration;
5. Monitoring and evaluation of achieved results.

In December 2023, the Government adopted the Smart Specialisation Strategy for 2024–2027 and a two-year Action Plan for 2024–2025.

The main vision of the Strategy is to foster green and sustainable growth by integrating knowledge, innovation, and technology in order to create high-value products and services that are competitive both on the domestic and international markets.

This document is the result of a detailed analytical process and extensive consultations involving over 800 stakeholders within the quadruple helix framework.

The process identified four vertical priority domains with potential for specialisation:

• Smart agriculture and high value-added food**,**
• ICT – Information and Communication Technologies**,**
• Electro-mechanical industry – Industry 4.0**,**
• Sustainable materials and smart buildings**.**

Additionally, Energy for the Future and Tourism have been recognised as horizontal domains.

These priority domains will be strengthened through five pillars of intervention, defined within the entrepreneurial discovery process, namely:

- Building a foundation for scientific excellence;
- Enhancing the innovation ecosystem;
- Improving competitiveness and greening the business sector;

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- Developing human capital and skills for innovation and green and digital transformation;
- Digital transformation of society and businesses; as well as good governance and continuous dialogue as a cross-cutting objective.

Through these domains, the state aims to stimulate technological development**,** increase exports**,** and strengthen the connection between science and industry**. The** definition of priority areas also helps the government focus on relevant common goods and infrastructures that are specific to these priority domains.

The Strategy is already incorporated into national key strategic documents such as the National Development Strategy 2024-2044, National Economic Reform Program, the IPAIII country profile, and is a part of the new Growth Plan and Reform Agenda of North Macedonia.
The 2024–2025 Action Plan outlines a comprehensive framework for strengthening the national innovation ecosystem, enhancing scientific excellence, and supporting sustainable economic transformation. The measures and activities are organized into six strategic objectives that collectively aim to advance the country's Smart Specialization Strategy (S3) and ensure effective governance, capacity development, and inclusive growth.

The measures and activities under the 2024–2025 Action Plan are grouped into five strategic objectives:

1. **Create foundations for scientific excellence** –This strategic objective focuses on establishing the conditions necessary for high-quality research and knowledge production. Key measures include:
   - Strengthening human resources for research through training, mobility programs, and career development opportunities.
   - Expanding and modernizing research infrastructure to support advanced scientific work.
   - Increasing funding for research activities within the S3 priority domains.
   - Improving the legal and regulatory framework to facilitate research, innovation, and international cooperation.

2. **Improve the innovation ecosystem** .This objective addresses the need for a dynamic and well-connected innovation environment. It includes measures to:
   - Build and strengthen institutional infrastructure and innovation platforms.
   - Improve mechanisms for knowledge and technology transfer.
   - Enhance collaboration between academia and the business sector.
   - Support the development and scaling of innovative start-up companies.

Together, these actions seek to stimulate entrepreneurship, accelerate innovation, and promote commercialization of research results.

3. **Improve competitiveness and greening of the business sector**. The aim of this objective is to support companies—particularly those in S3 priority domains—in becoming more productive, competitive, and environmentally sustainable. Measures include:
   - Improving productivity through technological upgrading and adoption of advanced processes.

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- Facilitating green and digital transformation across industries. These actions are intended to help businesses align with EU standards and global sustainability trends

4. **Develop human capital and skills for innovation, and green and digital transformation** –To ensure a skilled workforce capable of driving innovation, this objective focuses on:
   - Enhancing academic programs relevant to the S3 domains.
   - Strengthening the skills and knowledge of employees in companies operating within S3 fields.This includes both formal education reforms and non-formal training programs, helping bridge the gap between labor market needs and available competences.

5. **Digital transformation of society and businesses** – focuses on supporting innovation through the digitalization of the public and private sectors
   - Supporting digitalization within the public sector to improve service delivery and transparency.
   - Encouraging digital transformation in the private sector through the adoption of ICT tools.

     These actions aim to create a more efficient, data-driven, and innovation-friendly environment.
6. **Ensuring continuous S3 dialogue and good governance –** Effective implementation of the Smart Specialization Strategy requires strong governance mechanisms. This objective includes:
   - Establishing a robust structure for S3 governance, coordination, and monitoring.
   - Ensuring continuous dialogue among government institutions, academia, businesses, and civil society.
     This supports transparency, accountability, and evidence-based decision-making.

The Action plan includes 35 measures and 63 activities, Most of the activities have been carried out by the Ministry of Education and Science, followed by the Fund Innovation and Technology Development and the Ministry of Economy and Labor. In the implementation of the Action Plan, it is necessary to include other relevant institutions such as the Ministry of Agriculture, Forestry, and the Ministry of Environment. The implementation of measures and activities in the fields of agriculture, renewable energy sources, and the green transition is of crucial importance for the country's economic development; therefore, they should be included in the new Action Plan.

Although the strategy represents a significant step forward, its implementation faces several challenges:

- Limited institutional capacities;
- Insufficient linkage between the research and private sectors;
- Lack of qualified personnel in specific technological fields;
- Limited financial resources for research and development.

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Nevertheless, there are considerable opportunities for progress through better utilisation of European funds, strengthening public–private partnerships, and developing a national innovation system that will support smart specialisation.

Discussion

The research results confirm that Smart Specialization is a key instrument for Macedonia's economic transformation. The introduction of S3 creates opportunities for improving the competitiveness and modernization of industries, but the effects of the strategy depend on the degree of coordination between institutions, support from the private sector and the development of the innovation infrastructure.

The discussion highlights three critical points: the strategy is well designed, but implementation is vulnerable. Although Macedonia successfully identifies priorities, clearer monitoring and evaluation mechanisms are needed; the inclusive approach of S3 is underutilized. The participation of chambers of commerce, universities and municipalities is still limited, which reduces the efficiency of the "entrepreneurial discovery process". A balance between public and private investments is needed (Kroll, 2015). The low level of corporate investment in research and development represents a significant obstacle to establishing a dynamic innovation system (OECD, 2020). Overall, the discussion shows that Macedonia has the potential to use S3 as a basis for long-term economic development, but enhanced reforms, institutional stability, and active involvement of all relevant actors are needed.

## RECOMMENDATIONS

Based on the analysis and discussion, the following recommendations are proposed for a more effective implementation and utilization of Smart Specialization (S3) in Macedonia:

*1. Strengthening institutional coordination*

To establish a clearer distribution of responsibilities between ministries, agencies and local governments. Continuous inter-institutional communication and a functional coordination mechanism are needed to manage the S3 process.

*2. Increasing investments in research and development (R&D)*

In order to successfully transform to a knowledge-based economy, it is necessary to increase private and public investments in research, technological development and innovation. Fiscal incentives, grants and incentives for companies can significantly boost innovation activity.

*3. Supporting academic-industrial cooperation*

To create programs that will connect universities, scientific research institutions and the private sector through joint projects, laboratories, innovation centers and technology parks.

*4. Strengthening local capacity for S3 at the municipal level*

Local governments should actively participate in the Entrepreneurial Discovery Process (EDP) and develop local innovation ecosystems. This is particularly important for balanced regional development.

*5. Improving monitoring and evaluation systems*

Establish clear indicators for results, efficiency and impact of the strategy, as well as regular processes for monitoring and reviewing priorities in line with market and technological trends.

*6. Greater involvement of the business sector and startups*

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Companies should become active partners in defining priorities and creating innovation solutions. Stimulating the startup ecosystem can contribute to faster technologization of the economy.

*7. Raising public awareness of the importance of innovation*

In order for the strategy to be widely accepted, public campaigns, education and promotion of its benefits are needed, especially among micro and small enterprises.

## CONCLUSION

The Smart Specialisation Strategy constitutes a fundamental instrument for advancing the economy of North Macedonia to a higher stage of development. It facilitates the strategic allocation of resources**,** enhanced collaboration between the scientific and industrial sectors, and strengthened innovation and export competitiveness**.**

Through effective implementation and sustained institutional support, this strategy has the potential to serve as a catalyst for sustainable, green, and smart economic growth, fully aligned with European standards and the EU's 2030 objectives**.** The successful implementation of the Smart Specialisation Strategy depends on close cooperation and coordination among various ministries and institutions. In this regard it is essential to be improved stakeholder involvement mechanisms as well as to improves monitoring and evaluation process. Also, it is very important to strengthened Governance, financial sustainability and private-sector engagement.

The 2024–2025 Action Plan presents a cohesive set of strategic priorities designed to strengthen scientific excellence, foster innovation, build human capital, and support green and digital transformation. Through effective governance and sustained stakeholder engagement, the country is well positioned to advance its Smart Specialization Strategy and achieve long-term socioeconomic development.

Smart specialization is a strategic framework of key importance for the modernization and competitiveness of the Macedonian economy. The research shows that S3 is not just a technical document, but a long-term development instrument that directs the country towards areas with the greatest potential for innovation and growth. Macedonia has already made significant steps in identifying priority domains and establishing an institutional basis. However, the effectiveness of the strategy depends on the ability to improve coordination, investment and cooperation between all relevant actors. There are clear opportunities to advance the economy by stimulating research, technological transformation, the development of startups and improving access to European funds. If the recommendations are successfully implemented, Smart Specialization could become one of the most important drivers of economic development, modern industrial progress, and increasing Macedonia's competitiveness in a European and global context.

## REFERENCES

1. Aranguren, M. J., Magro, E., & Navarro, M. (2020). University–industry collaboration models.
2. Bowen, G. (2009). Document analysis as a qualitative research method.
3. Creswell, J. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches.*
4. European Commission (2021). *Guidelines for the Entrepreneurial Discovery Process.* Joint Research Centre.

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5. European Commission (2022). *Smart Specialisation Platform – S3 Framework.* Joint Research Centre, Brussels.
6. European Commission. (2012). *Guide to Research and Innovation Strategies for Smart Specialisation (RIS3).*
7. European Commission. (2020). *Monitoring S3 Implementation.*
8. European Commission. (2020). *Smart Specialisation Platform – Policy Briefs.*
9. European Commission. (2021). *Horizon Europe Programme Guide.*
10. European Union. (2021). *Horizon Europe Programme Guide.*
11. FICTR (2024). *Innovation Support Programs for Priority Sectors in North Macedonia.*
12. Foray, D. (2015). *Smart Specialisation: Opportunities and Challenges for Regional Innovation Policy.* Routledge.
13. Foray, D. (2018). *Smart Specialisation and Industrial Modernisation.*
14. Kroll, H. (2015). *Effects of stakeholder engagement in smart specialisation.*
15. McCann, P. (2015). The role of public investment in smart growth.
16. McCann, P., & Ortega-Argilés, R. (2015). Smart specialisation, regional growth and public investment.
17. Ministry of Economy of N. Macedonia. (2022). *National Smart Specialisation Strategy – Draft Report.*
18. Ministry of Education and Science of North Macedonia (2023). *National Smart Specialisation Strategy 2024–2029.* Skopje.
19. OECD. (2019). *Entrepreneurship and Innovation Report.*
20. OECD. (2019). *Productivity and Innovation in Emerging Economies.*
21. OECD. (2020). *R&D Investment Trends in Emerging Economies.*
22. Radosevic, S. (2017). Industrial upgrading and S3.
23. Radosevic, S. (2017). *Technology upgrading and smart specialisation in Eastern Europe.*
24. World Bank. (2020). *Innovation and Competitiveness in Western Balkans.*
25. World Bank. (2020). *North Macedonia: Country Economic Memorandum.*
26. Yin, R. (2018). *Case Study Research and Applications.*