

IDENTIFICATION OF OPPORTUNITIES FOR THE DEVELOPMENT OF THE KNOWLEDGE ECONOMY

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INTRODUCTION

Introduction. The rise of computerization, big data analytics, automation, and artificial intelligence has given us access to knowledge, resulting in a reorientation of the economies of developed nations towards intellectual capital and skills rather than production processes. The significance of knowledge in accelerating economic growth encourages us to analyse the significance, influence, and incentives of various parties involved in the process of knowledge creation. Early research highlights the significance of information, knowledge, and communication on the economy. However, we still lack reliable, open, and universally accessible assessment methods for obtaining the information required for the formation of development strategies.

Although extensive research has been dedicated to examining the development of the knowledge economy, there is still a lack of understanding regarding its practical implications for the formation of strategic objectives. There is a shortage of readily available and easy-to-use research instruments to identify opportunities for the development of the knowledge economy in order to shape development strategies. Identifying opportunities for the development of the knowledge economy has therefore become the research problem of this paper.

The aim of research. To identify opportunities for the development of the knowledge economy by creating a knowledge economy assessment model.

Objectives:

- To analyse the theoretical aspects of the development of the concept of the knowledge economy, connections among its elements, classification, and preconditions for its formation;
- To investigate the methods and models for the assessment of the knowledge economy;
- To identify the opportunities for the development of the knowledge economy.

The methods of the research:

- Systematic and comparative review of scientific literature based on the methods of comparison, classification, systematization, and generalization;
- Statistical analysis of economic indicators;
- Graphical representation of data and relationships thereof;
- Synthesis of analysis results and logical generation of conclusions.

Theoretical background

The knowledge economy is defined by substantial investments in both human capital and innovation activities. The knowledge gained and generated throughout the process is used to develop a competitive advantage, leading to growth in the production of knowledge-intensive goods and services. This increases the number of opportunities for disseminating knowledge while simultaneously reducing the associated costs. The knowledge economy is also characterized by an increasing emphasis on knowledge as an important element of the economy. Some sudden changes can be observed in the quality of both products and services, coupled with the prioritization of knowledge creation and use when choosing the direction of development.

The knowledge economy can be understood as a process whereas the dissemination of knowledge is a closed system. The identified preconditions for the creation of the knowledge economy can be grouped as follows: the quality of human capital; the level of development of ICT infrastructure; the quality of the innovation system; the economic and social situation and the creation of a favourable environment.

The assessment of the knowledge economy is carried out at macro and micro levels. Accordingly, the objects of assessment are the national knowledge base and the national innovation system. It must be emphasized that innovation development takes place at the micro level, while at the macro level, the enabling environment is created and the necessary instruments are provided for such development. An opportunity has been established to identify the development and dissemination opportunities by ranking the knowledge economy assessment indicators of the selected countries, identifying the leaders, and conducting a comparative assessment.

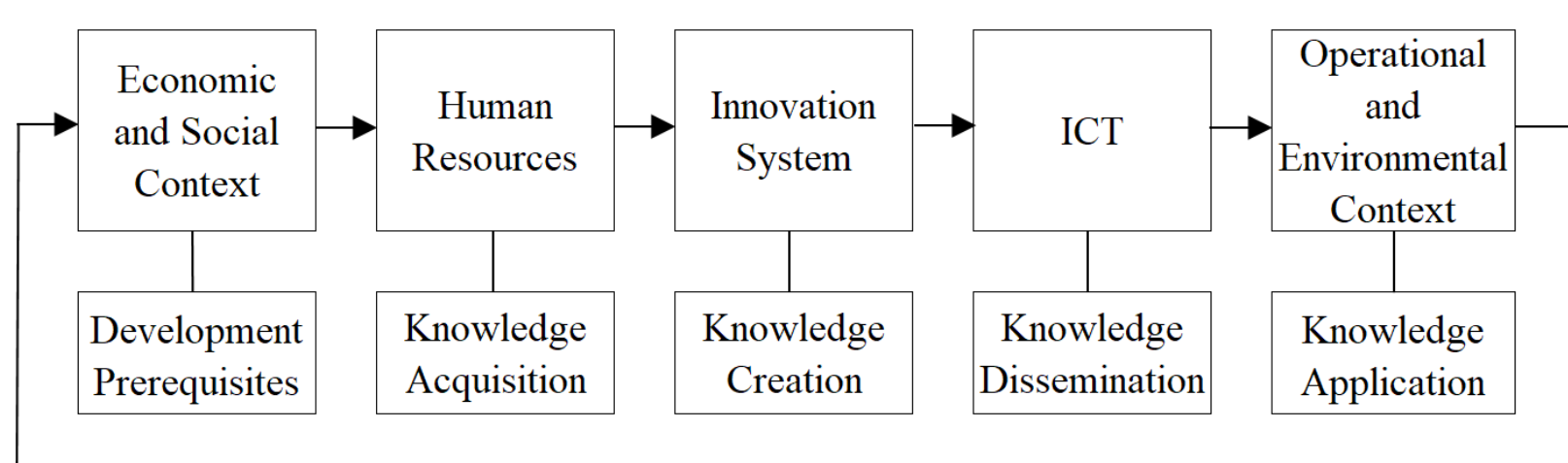


Fig. 1. Dependency of the knowledge dissemination assessment groups

Figure 1 illustrates how knowledge dissemination and diffusion processes are directly dependent on the assessment groups. It also highlights the importance of a strict sequencing of the groups until the results are achieved and the cycle starts again. Thus, the sequence and the cyclical nature of the processes are identified as the key features of knowledge development. Taking this insight into account, it is suggested to implement holistic (group-wide) assessment models for assessing the knowledge economy, while sectoral assessment models should be used for a more accurate assessment of a specific group where and if required.

Main findings

According to the Knowledge Economy Index, it can be concluded that the assessment of the knowledge economy of Lithuania over the past 12 years in comparison to the 27 European Union countries has evolved only moderately but toward a positive direction. The assessment of the overall indicators for the groups revealed that Lithuania ranked the lowest in the groups of Economic and Social Context and Innovation System. The best results, compared to the leader of the research, were recorded in the results related to the changes in the indicators for the group Human Resources.

Table 1 displays a summary of the findings from the causal factors analysis.

Table 1. Summary of identified opportunities for the development of the knowledge economy in Lithuania

No.	Name of the group	Name of the indicator	Assessment 2023*
1	Economic and Social Context	Main GDP aggregates per capita	Development Opportunity
		Gross fixed capital formation	Successful Development
		Persons at risk of poverty or social exclusion	Development Opportunity
		Knowledge-intensive service export	Successful Development
2	Human Resources	Population aged 25-34 having completed tertiary education	Development Reserve
		Population aged 25-64 participating in lifelong learning	Development Opportunity
		Employees aged 15-64 having attained tertiary education	Development Reserve
3	Innovation System	Share of GBARD in total general government expenditure	Development Opportunity
		GERD by sector of performance per capita	Development Opportunity
		Employment in technology and knowledge-intensive sectors at the national level of total employment	Successful Development
		PCT patent applications per billion GDP (in PPS)	Development Opportunity
4	Information and Communication Technology	Individuals who have never used internet of all individuals	Development Opportunity
		E-government activities of individuals via websites (last 12 months) of all individuals	Successful Development
5	Operational and Environmental Context	Venture capital expenditures of GDP	Development Opportunity
		Non-R&D innovation expenditures of turnover	Development Reserve
		Innovative SMEs collaborating with other SMEs of all SMEs	Successful Development

*the additional assessment is based on the latest statistical data (up to 2023)

The assessment of Lithuania revealed that there are rudiments of a positive development of the knowledge economy related to the changes in the indicators for the groups of Human Resources as well of favourable Operational Environment. However, in most cases, the results of the country were not only below the standard of Finland, a country chosen as a leader and an example of the best practice, but also quite far from the EU average, and in a few cases – the worst in the EU. While it can be argued that there are tangible indications of a successful dissemination of the knowledge economy in Lithuania, the overall development has been unsuccessful, mainly due to the absence of a clearly formulated development strategy.

MAIN RESULTS AND CONCLUSION

Achieving the objectives of the research:

- The main prerequisites for the development of the knowledge economy have been determined to include the following: economic stability; knowledge dissemination system; favourable social climate; globalization and international openness; targeted private, public, and foreign investment;
- To assess the knowledge economy, the assessment indicators are categorized according to characteristic groups: economic and social context; human resources; innovation system; information and communication technology infrastructure; operational and favourable environmental context. Similarly, the processes of knowledge dissemination and diffusion directly depend on the sequencing of assessment groups;
- The Development Opportunity group consists of indicators that are proposed as a basis for further formation of the development strategy: poverty or social exclusion; lifelong learning; government and general R&D expenditure; number of patent applications; use of the internet; access to risk capital. The group of Successful Development comprises of indicators that showcase the successful implementation of developmental measures, demonstrating progressive dynamics. It is recommended to monitor these indicators and make necessary adjustments to the development plan when and if required. The Development Reserve consists of indicators that showed extremely good results during the assessment. They are seen as surplus resources that could be utilized more effectively in other development solutions that are lacking in resources.

Conclusion. From 2012 to 2023, the development of the knowledge economy in Lithuania has been inconsistent. Some of the development measures foreseen in the development strategy were ineffective or absent.