

**BACKWARDNESS OF CENTRAL AND EASTERN EUROPE AS A HERITAGE OF THE SOVIET PERIOD**

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**Abstract**

The economy of Latvia lags behind economically developed nations fourfold in terms of labour productivity in the tradable sector, thereby affecting future sustainable development in the entire country, including the rural areas. This is the heritage of a communist regime that lasted for about half a century and the economic system termed a (centrally) planned economy. However, such a term for the communist-period economy is not correct; the right term is a mobilised (war) economy, and Latvia was forced to spend on confrontation with the West not one GDP of 2011.

**Aim**

to assess the effect of the communism period on the economic backwardness of the Central and Eastern European region of the EU.

**Tasks**

1) to describe the economic system (model) of the communism period in Latvia and substantiate the term mobilised (war) economy; 2) to estimate the military expenditures of Latvia in the period 1945-1990.

**Materials and methods**

The present research employed analysis and synthesis, the geometric progression method, the extrapolation method and various sources of information on the problem researched.

**Results**

**1. Characteristics of a mobilised (war) economy**

There are several terms used for describing the economic system that existed in the 20th century in a number of countries with a communist regime that was, in most cases, established by the USSR. The terms do not reveal the key purpose such an economic system was created for. There are relatively few references to the term war or mobilised economy (e.g. Polish economist Oskar Lange; French economist Jacques Sapir).

One of the key peculiarities of a mobilised economy is the lack of private property. Almost everything belongs to the State (government), except for household items, which is masked under the slogan "everything belongs to the people".

It was easy to hide statistics in the mobilised economy, which allowed developing and maintaining a disproportionately large military industry and army that lowered prosperity because they did not contribute to the prosperity, only lowered it according to the guns-and-butter curve.

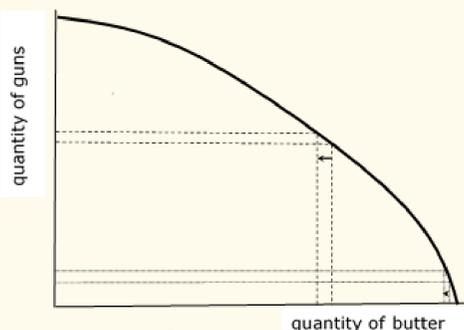


Fig. 1. **Production possibility frontier for "guns and butter" or the guns-and-butter curve**

Money was used in the mobilised economy of the USSR, yet the money did not perform the usual functions of it. In this mobilised economy, money was less valuable than products were.

During the Soviet period in Latvia, military industry expenditures in the manufacturing output plan equalled 55.4%. In the 1980s, the output of military manufacturing products represented 20-25% of GDP, consuming incredibly large economic resources. Three quarters of scientific research (in terms of money) were done for military purposes.

**2. Estimates of military expenditures for Latvia**

An extrapolation of the GDP per capita of Latvia by using the geometric progression equation ( $a=l/r^{(n-1)}$ ) based on the CSB data (2011 prices) and an assumption that in case Latvia were an independent country, it would spend approximately 5% of its GDP on its military instead of 20-30% that was spent during the Soviet occupation revealed that an excess military expenditure of Latvia was in the range from EUR 17 to 28.3 bln.

Based on the Maddison project database data (at 2011 prices, based on purchasing power parities (PPPs) and the Balassa-Samuelson effect), the extrapolation revealed that the military expenditure was in the range from USD 90.5 to 150.8 bln.

**Conclusion**

1. Still, an inaccurate term for the economic system that existed during communism in the USSR as well as in most of the communist countries is used; this economic system has to be termed a mobilised (war) economy.
2. Among the former communist countries, only Yugoslavia had not introduced a mobilised economic system, thereby achieving a considerably higher standard of living during communism.
3. A mobilised (war) economy significantly lowers the standard of living, as a lot of resources are consumed by the military industry and related fields that do not contribute to prosperity, except for exports of weapons.
4. In a mobilised economy, goods (and services) are more valuable than money, which does not promote economic activity, unlike it is in a market economy. The function of money is partly performed by government orders (like in the army) and penalties for not obeying the orders.
5. Latvia, not being a free country during communism, was forced to spend on confrontation with the West at least EUR 17 bln. (2011 prices) or approximately one GDP of that year.

## COMMUNITY COOPERATION FOR TOURISM DEVELOPMENT

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### Abstract

Cooperation in the tourism sector is still topical as virtually no new tourism offer is possible without cooperation. However, in the context of community initiatives, cooperation in tourism has not been analysed very much. Cooperation is based on the understanding and exchange of information facilitated by existing and new forms of common actions between public and private actors. The research results reveal that community cooperation for the development of rural tourism in Latvia can be seen as structural with the Rural Support Service as a central actor, which is responsible for the uniform implementation of the state's and EU support policy in Latvia, monitors compliance with agricultural legislation and regulates the conditions of all involved. At regional level, cooperation is coordinated by rural partnerships and governed by their strategies that sets clear objectives for local action in communities.

### Aim

The aim is to analyse community cooperation in rural tourism development on the basis of content analysis of the LEADER projects and previous studies.

### Tasks:

- 1) to describe the nature of communities and the role of the Rural Support Service in local tourism;
- 2) to reveal conceptual cooperation models of community involvement.

### Materials and methods

Content analysis was used to review LEADER projects (2007 -2020) of 35 Local Action Groups.

### Results

Analysis reveals that many projects improve the quality of life of the local population and have a positive impact on the travellers' rating of the place visited. 405 LEADER projects could be attributed to tourism development in Latvia (both programming periods 2007-2013 and 2014-2020). The most tourism related projects are in the planning regions of Kurzeme and Pieriga (Fig. 1), which may be explained by the more active tourism sector in Kurzeme, especially in the coastal areas. The case of Pieriga phenomenon can be at least partially explained by the density of partnerships (nine partnerships).

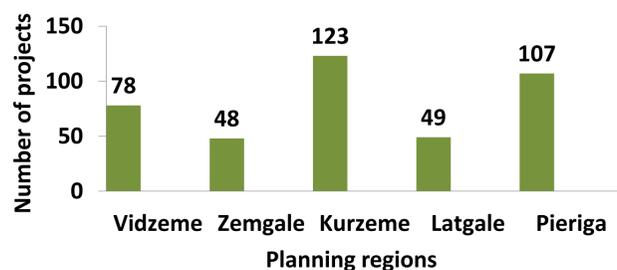


Fig. 1. Number of LEADER supported projects in Latvia's regions directly and indirectly related to tourism, programming periods 2007-2013 and 2014-2020

The tourism supply creation process is an activity influencing an involvement of new partners in the tourism cooperation system. The collaboration is formed and changed by the purposeful cooperation of the tourism service providers with the partners directly and indirectly involved in tourism. Two cooperation models can be identified. In the first model, most of the social agents represent local communities, and the Rural Support Service plays an important role (Fig. 3). Municipalities cooperate with the partnerships on projects to improve recreation facilities, bathing areas, and infrastructure.

A broader spectrum of the collaborative model is the range of local communities: churches, volunteers, hunters, anglers, sports and other local initiative groups. Partnerships in this model can be seen as centres for project synergies that maintain up-to-date strategies and collaborate with the RSS. Thus, the second cooperation model can be identified as collaboration between partnerships. In major projects that could promote the development of tourism in larger areas, partnerships implement common projects.

In the case of rural communities, sectoral policies, such as rural development policy and regional development at national and EU level, are also important, defining and influencing local development priorities and schemes of the external resources available for development.

Activities of local communities are related to improving tourist accommodations, starting a tourism business, and developing new products. Projects include activities related to improvements of infrastructure and attractiveness of the site. Communities are interested in preservation of local historical heritage, creation of exhibitions of collections, in commemoration of important personalities, and preservation of traditional rural landscapes by cleaning up nature objects, parks and bathing areas (Fig. 2)

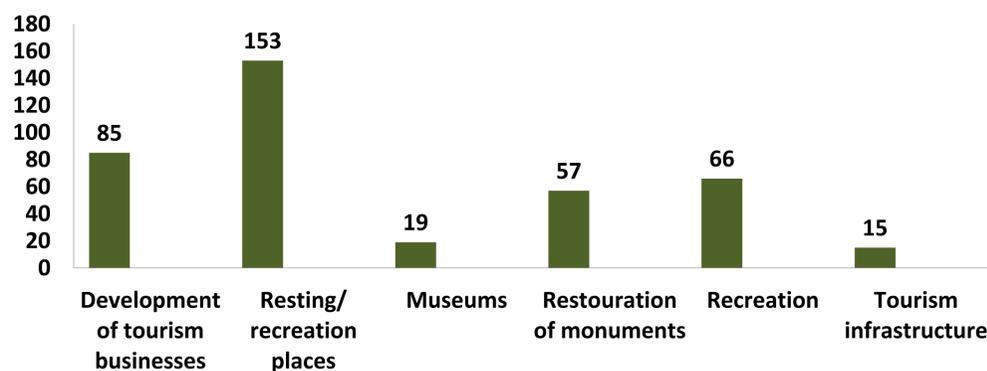


Fig. 2. Number of LEADER supported tourism projects in Latvia by their content since 2009

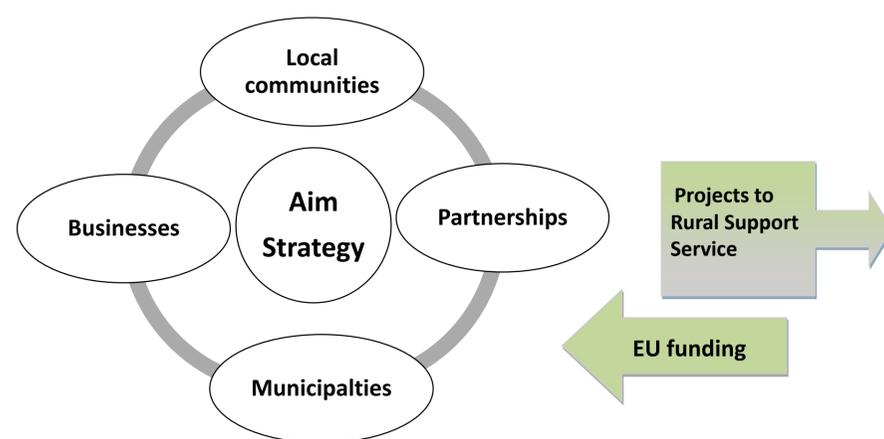


Fig. 3. Cooperation agents in preparation and implementation of the LEADER projects

### Conclusions

1. Community cooperation for the development of rural tourism in Latvia can be seen as structural with the Rural Support Service as a central actor, which is responsible for the uniform implementation of the state's and European Union's support policy in Latvia, monitors compliance with agricultural legislation and regulates the conditions of all involved. At regional level, cooperation is coordinated by rural partnerships and governed by their strategies that sets clear objectives for local action in communities.
2. The Local Action Groups play an important role in conceptualising projects and programs aimed at identifying social and economic needs, some of which are directly and indirectly linked to the development of the tourism industry in rural areas. Community projects are another way in which associations, municipalities and businesses can contribute to improving the quality of life.
3. Projects directly related to tourism development aim to diversify rural tourism services in rural tourism businesses by developing new innovative recreation facilities, increasing the capacity of holiday homes and improving the area's capacity for rural tourism. Creation of new jobs in local areas generates additional farm income while strengthening the local economy.
4. The main results of community-based cooperation projects from tourism-related projects are improvement of the environment and infrastructure, and the preservation and promotion of the cultural and historical heritage.

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## COMPARATIVE ANALYSIS OF SMART DEVELOPMENT OF TERRITORIES: THE EXAMPLE OF DAUGAVPILS AND ILUKSTE MUNICIPALITY

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### Abstract

A region's smart growth, based on knowledge and innovation, is considered to be a driving force for an area's growth. However, the development of an area has to occur in a prudent way, without endangering future generations' opportunities, and combining three dimensions: environmental, economic and social, thereby causing sustainable growth, promoting resource efficiency, reproducing resources and building a more competitive economy. Innovative regional development strategies employ the concept of smart specialization, assuming that the characteristics that ensure the development of a region's competitive advantages have to be identified and made use of. Smart specialization means innovation-oriented growth and identification and development of an area's potential, which contributes to the region's competitiveness.

### Aim

The research compared smart development between the municipalities of Daugavpils and Ilukste based on a methodology and an index designed and findings made under the national research programme EKOSOC-LV, project 5.2.3 Rural and Regional Development Processes and Opportunities in the Knowledge Economy Context, as well as within the project Challenges for the Latvian State and Society and the Solutions in International Context (INTERFRAME-LV).

### Materials and methods

The research employed the following methods: monographic, statistical analysis (Eurostat, the Central Statistical Bureau, the State Revenue Service, Lursoft etc.); factor analysis; T.Saaty's Analytic Hierarchy Process (AHP); a modified version of models developed by E.M.Rogers-D.Kincaid's conceptual sub-model of communication; population surveys, focus group and stakeholder interviews, field surveys of research areas, photo fixation, cluster analysis, correlation analysis, the graphical method and development of cartographic materials. In the course of the project, an innovative indicator was developed – the municipality smart development index

### Results

The authors performed a comparative analysis of two municipalities of Latvia – Daugavpils and Ilukste – by using the methodology developed and findings made in the above-mentioned project.

1. The indicators of the resource dimension are intended for capturing the situation with utilized agricultural land (UAA). The intensity of use of this resource determines whether the resource is used efficiently. It has been observed that in Daugavpils and Ilukste municipalities this resource is particularly important. Compared with Daugavpils municipality, Ilukste municipality has a larger area of natural resources to be managed. This could be explained by the fact that the most important industries in the municipalities are mostly agriculture and forestry.
2. The smart population dimension shows not only the level of qualification or education of the population but also the quality and quantity of social interaction in the context of municipal non-governmental organizations (NGOs). This aspect was recognized by the EKOSOC-LV experts as one of the most important one in terms of growth and development (Jermolajeva, Aleksejeva, Ostrovska, Šipilova 2018).
3. As shown in Table 1, the situation with the number of innovative enterprises was better in Ilukste municipality, which also improved other dimension indicators. One of the most important indicators of economic activity is the number of self-employed individuals per 1000 capita, which was also higher in Ilukste municipality than in Daugavpils municipality. Overall, the indicators of the smart economy dimension for Ilukste municipality were higher than those for Daugavpils municipality.

Table 1

### Comparison of smart economy dimension indicators for Daugavpils and Ilukste municipalities

Characteristics	Indicators	Daugavpils municipality	Ilukste municipality
Characteristics of innovative enterprises	Number, %	8.55	12.12
	Turnover, %	1.73	4.15
	Number of employees, %	5.08	17.31
	Turnover per employee, EUR	11241	11453
Self-employment per 1000 capita		22.96	31.84

**Source:** authors' calculations based on EKOSOC-LV data

4. Political participation, assessment of the quality of services by citizens and administrative performance are part of smart governance. The indicators chosen were as follows: EU funding allocated; voter turnout in local elections; changes in the Latvian e-index: the index captures data and indicators on how actively, under the current circumstances, local governments use the solutions offered by modern information and communication technologies to improve the quality and accessibility of services for citizens and enterprises; and Internet coverage In order to ensure balanced development in the territory of Daugavpils municipality, investments were attracted to and projects were implemented in the municipality in accordance with the policy documents of the municipality, incl. the Investment Plan of the Development Programme for Daugavpils municipality (Daugavpils novada attīstības programma 2012.-2018.gadam). The ESF funding allocated and drawn down for development was larger in Ilukste municipality than in Daugavpils municipality, although, according to the territorial development index, which is used in designing national support programmes for regional development, differentiating the financial support provided by the EU Funds and assessing the effects of financial instruments on the development and economic efficiency of territories, Ilukste municipality was ranked 92<sup>nd</sup>.

### Conclusion

1. Smart development in Daugavpils and Ilukste municipalities was examined in more detail according to the project EKOSOC-LV methodology focusing on four dimensions of development – a smart population, a smart economy, smart resources and smart governance. It could be concluded that overall, the development of both municipalities was not in line with trends in smart development, which was confirmed by the smart development index and the Sustainable Development Strategies of Daugavpils and Ilukste municipalities, as the prospects for development were not oriented towards smart growth. The Sustainable Development Strategy of Ilukste municipality showed a greater observance of the principles of smart development than the Sustainable Development Strategy of Daugavpils municipality did, as Ilukste municipality had a higher territorial development index and a higher smart development index as well as its strategy emphasized smart development as a future prospect.
2. In essence, the development of the municipalities was focused on the traditional economic development pattern, yet it is necessary to create a science-intensive economic model, in which innovative and flexible management ensure the viability of Daugavpils municipality and Ilukste municipality as rural areas.

### Acknowledgements

The paper was supported by the national research programme EKOSOC-LV, project 5.2.3 Rural and Regional Development Processes and Opportunities in the Knowledge Economy Context and the project Challenges for the Latvian State and Society and the Solutions in International Context (INTERFRAME-LV)

## INTANGIBLE RESOURCES FOR RURAL DEVELOPMENT: ASSESSMENT APPROACH

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### Abstract

Recently, significant economic, social and cultural changes take place in rural areas. Most countries faced the challenges of rural development, when the focus on agricultural and agro-industrial production and support for farming ceased to produce tangible socio-economic results. The potential for sustainable development of rural areas is based on a whole range of material and intangible resources that can act as drivers of economic growth and achieve the quality of socio-ecological environment by attracting investment, stimulating innovative processes and engaging highly qualified human capital. The interdisciplinary approach can help to open up instrumental opportunities for developing methods for assessing and analyzing intangible resources for rural development. The aim of the research is to identify the advantages and limitations of using an intangible-oriented approach to the justification and implementation of rural development policies, and to identify various types of intangible resources for rural development. The authors solve the problem of assessing the efficiency of use and the subsequent buildup of intangible resources for the development of rural territories based on building of an appropriate toolkit. The authors propose an interdisciplinary instrumental approach to assessing intangible resources for rural development, which is the basis for the subsequent development of taxonomic signs of empirical models of rural development policy depending on the availability and characteristics of intangible resources, as well as introducing model strategies for incorporating intangible resources into rural development policies

### Aim

The aim of the research is to identify the advantages and limitations of using an intangible-oriented approach to the justification and implementation of rural development policies, and to identify various types of intangible resources for rural development. It will help to solve the problem of assessing the efficiency of use and subsequent building up of intangible resources for rural development based on the development of appropriate tools.

### Tasks

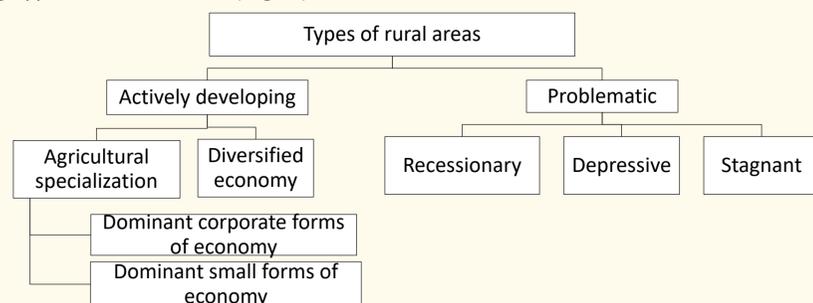
- on the basis of theoretical sources to identify the main types of rural areas and the main factors of the rural development;
- to systematize the diversity of intangible resources;
- to outline the main advantages and limitations of the non-material approach to the justification and implementation of rural development policies;
- to propose an approach to assessing intangible resources for rural development, which is the basis for the subsequent development of taxonomic signs of empirical models of rural development policy depending on the availability and characteristics of intangible resources.

### Materials and methods

The research methodology included the analysis of the scientific and other publications, reports, studies and other literature sources on various aspects of resources influencing the development of rural areas, case analysis, system and comparative analysis.

### Results

In this study, we understand rural areas as the low-density places of residence, located in a specific natural and geographical landscape, having certain sources of food and agricultural raw materials, natural resources and a certain “non-urban” lifestyle. Significant differences between rural areas, determined in particular by their resource potential, create the need for their typology. The classification is based on economic characteristics that allowed us to distinguish the following types of rural areas (Fig. 1).



Source: created by authors

Fig. 1. Types of rural areas

Authors propose to understand the concept “intangible resources of rural development” as a complex of multilevel and multifunctional components that have different genesis, do not have physical or financial embodiment and are able to level natural, technological and financial restrictions, as well as mobility limitations of production factors in order to produce new types of goods and services. Such an approach makes it possible to systematize the whole diversity of intangible resources within the framework of five groups: symbolic, network, management, information and communication and innovation (Table 1).

Table 1

#### Types of intangible resources for rural development

Resource Type	Content
<b>Symbolic</b>	Local identity Territory image Public values enshrined in development strategies
<b>Network</b>	Level of interpersonal trust Institutional confidence level The density of interpersonal and institutional ties
<b>Management</b>	Leadership (formal and informal) Professional competencies of decision makers Local Government Institutions Institutions of self-organization of citizens
<b>Information and communication</b>	Local print and electronic media Community digital resources Interactive interfaces for interaction between community members and development policy agents
<b>Innovation</b>	Technological, marketing, “green” and organizational innovations; mechanisms for their production and diffusion in the context of rural development policy

Source: created by authors

The analysis of existing approaches and methods developed on their basis allows us to highlight the advantages as well as possible limitations in comparison with the traditional assessment of material resources in relation to rural development policy.

Table 2  
Advantages and limitations of the non-material approach to the justification and implementation of rural development policies

Advantages	Limitations
An objective increase in the value of intangible assets over time	The difficulty of formalizing indicative characteristics
Compliance with the general trends for the knowledge economy, social economy, identity economy	The potential subjectivity of the assessment and the controversy of the validity of the results
Maximum consideration of the characteristics of a specific territory, the creation of unique context-sensitive techniques	The inability to create universal tools. The meaningful content of indicators involves an independent empirical study based on qualitative methods.

Source: created by authors

The set of parameters characterizing each type of resource can be fixed in a function where each type of resource is characterized by a set of parameters and has the same relevance:

$$Y(t) = f(Syma., Netb., Orgc., Inf., Inne.) \quad (1).$$

The combination of these components of intangible resources forms various types of relationships. Such relationships underlie practices that produce and reproduce cultural landscapes and ultimately determine the level of socio-economic development. Thus, by “using the intangible resources of the region” we mean the process of their transformation into tangible results, expressed in the growth of competitiveness, investment attractiveness of the territory and an increase in socio-economic indicators. The development of such a system has the following stages:

- selection of input data;
- formation of an appropriate system of criteria;
- operationalization of each criterion by highlighting specific parameters (questions);
- development of an assessment scale;
- development of analytical tools (expert questionnaire);
- determination of the procedure and expert assessment.

The proposed methodological approach includes, along with the methods of collecting quantitative data traditional for economic research, some specific sociological and statistical-mathematical research methods “dealing with” with large amounts of empirical data.

### Conclusion

1. A variety of theoretical and empirical approaches to the study of rural development processes opens up broad prospects for their integration and emphasizes the importance of studying intangible resources that form the potential for sustainable development and shape the success of rural development policies. The definition and operationalization of the intangible resources of rural development is extremely important. As well as the development of high-quality monitoring methods and a comprehensive assessment of the effectiveness of rural development policies. The current approaches to the assessment of intangible assets focus mainly on the organizational level and are poorly applicable to the territorial context.
2. The trend to include the assessment of intangible resources in the process of justification and implementation of rural development policies has both advantages and limitations. At the same time, taking into account possible limitations when developing analytical tools for assessing the potential of intangible resources of rural development makes it possible to improve the quality of rural management.
3. The authors propose an instrumental approach to assessing intangible resources for rural development based on three interval measurements of five types (symbolic, network, managerial, information and communication, innovation) of intangible resources in two projections (standard and current). The proposed approach broadens the scope of research on rural development resources by including, along with traditional economic methods of the collection of quantitative data, specific sociological and statistical-mathematical research methods “dealing with” with large amounts of empirical data. Currently, the toolkit is undergoing testing and verification of indicators to evaluate the results and existing opportunities.

# 21<sup>th</sup> International Scientific Conference ECONOMIC SCIENCE FOR RURAL DEVELOPMENT 2020

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## FACTORS CONTRIBUTING TO THE REGIONAL DEVELOPMENT OF E-COMMERCE IN LATVIA



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### Abstract

E-commerce contributes to the improvement of communications between the company, producers, distributors and customers. However, it should be noted that success in e-commerce depends upon determining effective factors in e-commerce. There is a set of effective inside organisational and outside organisational factors in e-commerce which should be taken into consideration during the development of e-commerce. Despite excellent connectivity and good digital public services, Latvian SMEs do not use effectively online selling, social media, cloud computing and big data possibilities.

### Aim

to analyse the factors contribution to the development of e-commerce in the regions in Latvia.

### Tasks

1. to review scientific background;
2. to analyse the factors that enhance the development of e-commerce in regions of Latvia;
3. to provide recommendations to regional enterprises.

### Materials and methods

In order to achieve the aim, following research methods have been used: scientific literature studies, statistical data analysis, survey.

Main information sources: primary data: business survey; secondary data: scientific literature, published studies, political planning documents and normative legal acts, as well as official statistical databases.

### Results

In order to analyse the use of e-commerce opportunities by Latvian entrepreneurs, a survey of entrepreneurs on factors contributing to the development of e-commerce was developed. The aim of the survey was to find out what factors influence the use of e-commerce in Latvian companies, incl. how these factors vary depending on the region in which the company operates. The survey was conducted from November 2019 to January 2020. In total, 77 companies participated in the survey representing all regions of Latvia as well as various sectors of national economy.

Table 1 illustrates the evaluation of entrepreneurs for individual factors that affect the use of e-commerce in their business. Overall results showed that, half of the companies considered the following factors to be very important (rating "9") for the use of e-commerce: mobile network coverage, employee skills, managerial attitude, willingness to develop, employee knowledge, managerial knowledge. The highest average scores are for the following factors: desire to develop (8.16), employee knowledge (8.12), managerial attitude (7.99), technological development in the world (7.96), and managerial knowledge (7.87) and existence of financial resources in the company (7.82).

According to the surveyed companies, the least important factors in the development of e-commerce are the leader of non-governmental organisations (average rating - 4.25), the activity of non-governmental organisations (4.63), the leader in the municipality (4.73), and local government policy (4.75).

t test showed that significant differences in the regional breakdown for entrepreneurs are due to the following factors:

- Employees' skills (for Kurzeme entrepreneurs);
- Competitors' activities (for Kurzeme entrepreneurs);
- Willingness to develop (for Kurzeme entrepreneurs);
- Training opportunity for employees (for Kurzeme entrepreneurs);
- Knowledge of employees (for Kurzeme entrepreneurs);
- State aid (for Vidzeme entrepreneurs).

In other cases, the assessment of the importance of e-commerce factors in different regions of Latvia does not differ significantly from the overall assessment.

### Conclusion

1. The literature review showed the most important factor groups that affect the use of e-commerce are technological development, organisational, legislation, and economic factors. At the same time, language and content barriers as well as lack of secure payment infrastructure are considered as significant barriers avoiding to adapt e-commerce.
2. Conducted survey demonstrated that, in general, factor groups "Technological development" and "Social factors (human skills)" are the most important for Latvian entrepreneurs regarding the development of the e-commerce. In case of regional cross-cut, in Kurzeme, Riga and Latgale regions entrepreneurs are rather in favour of technological development factors affecting the usage of e-commerce, while entrepreneurs in Zemgale and Vidzeme regions think that social factors affect the development of e-commerce the most.
3. Survey results showed that such individual factors as desire to develop, employee knowledge, and managerial attitude, technological development in the world, and managerial knowledge and existence of financial resources in the company were evaluated the highest in terms of effect on usage of e-commerce in the business.
4. The analysis of individual factors showed that the evaluations of Kurzeme region entrepreneurs varied the most from general evaluations. Entrepreneurs from Kurzeme region finds business environment in the country, state aid cellular network coverage and availability of EU funds the most important regarding the use of e-commerce in their business, while in the rest of Latvia the most important factors are desire to develop, technology development in the world, knowledge of employees and manager's attitude.

### Acknowledgements

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Table 1  
Answers to the question "Please rate on a scale of 1 (not significant) to 9 (very important), factors that you think affect the use of e-commerce in your business" – regional cut

Factor	Riga	Kurzeme	Vidzeme	Latgale	Zemgale
Development of telecommunications network	7.1	6.1	8.3	8.1	7.9
Cellular network coverage	7.3	7.1	8.2	8.6	8.2
Employees' skills	7.9	5.9	9.1	8.3	7.2
Manager's skills	7.7	5.6	8.2	8.4	6.8
Manager's attitude	8.0	6.3	9.0	8.9	7.7
Creative atmosphere in the company	7.5	5.6	8.7	6.9	6.8
Competitors' activities	7.6	4.8	7.3	7.5	6.8
Positive success stories	6.5	5.8	6.9	7.8	5.8
State aid	5.4	7.4	8.8	7.1	7.0
Business environment in the country	6.8	7.6	7.9	7.0	7.5
Activities of non-governmental organisations	4.8	3.0	5.1	3.9	5.3
Availability of EU funds	5.2	7.0	6.9	7.3	5.7
EU policy	5.1	4.6	5.8	4.1	5.4
Local government policy	5.2	4.4	3.7	3.3	3.8
Existence of financial resources in the company	7.8	6.3	8.6	8.5	8.1
Desire to develop	8.4	6.4	8.8	9.0	7.4
Training opportunity for employee	7.7	5.9	8.6	8.3	7.0
Leader of the company	7.1	6.3	8.0	8.8	7.7
Leader of the municipality	5.4	3.4	4.1	4.3	4.0
Leader of the country	5.1	4.0	4.9	4.0	4.3
Leader of non-governmental organisations	4.7	3.5	4.3	3.3	3.9
Global market trends	8.0	6.5	7.6	7.8	7.3
Technology development in the world	8.2	6.9	8.3	8.1	7.5
Knowledge of employees	8.3	6.1	9.0	8.4	7.7
Manager's knowledge	7.9	6.9	8.7	8.4	7.4
Taxation policy	5.9	5.5	7.3	7.4	7.2
E-commerce legislation	7.2	6.9	8.4	8.5	7.5
Investment opportunities	6.9	6.3	8.4	8.4	6.9

\* marked average scores that are at least 20% higher (in green) or lower (in red) than the average in the sample overall

Source: business survey, number of respondents - 77; research period: November 2019 - January 2020

**THEORETICAL CHARACTERISTICS OF USING LEVERAGE  
INSTRUMENTS IN THE CONTEXT OF RURAL ENTREPRENEURSHIP**

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## Abstract

Today, the matters pertaining to regional and urban development in the EU are increasingly integrated into EU development plans and strategies. The EU actively facilitates regional development by supporting the development of small and medium-sized enterprises in the regions to contribute to employment, education and social integration. The strategic goal of the National Development Plan of Latvia 2021-2027 is to promote also regional development in Latvia in order to ensure long-term balanced growth in the country. Promoting entrepreneurship in the regions is of great importance, as Latvia is still one of the countries in the European Union experiencing unbalanced regional development and having socio-economic disparities. Consequently, financial performance and financial stability play an important role in sustainable business development. Rural entrepreneurs whose business is seasonal often lack an awareness of the role of financial leverage degrees, which could lead to making wrong decisions. Performing an assessment of the degrees of financial leverage could be useful not only in a situation when experiencing a business expansion but also when a business decline occurs, which is specific to rural entrepreneurship.

**A hypothesis** of the present research is based on the authors' opinion that by meaningfully applying the degrees of financial leverage, it is possible to enhance the financial performance of enterprises, which is particularly important for rural entrepreneurship.

## Results

Financial leverage degrees are calculated by dividing a percentage change in one indicator by a percentage change in another, so the result of the calculation indicates which rate of change is higher (the calculation employed profit and loss account indicators and EBIT). In analysing financial leverage degrees, focus has to be placed on a percentage change in the numerator. Compared with a percentage change in the denominator, the percentage change in the numerator has to be larger or positive. Formulas for calculating financial leverage degrees (1, 2 and 3) Jones, Charles, P. (1992) are given below.

A formula for calculating a degree of operating leverage (DOL):  
Percentage change in EBIT / percentage change in net turnover (1).

A formula for calculating a degree of financial leverage (DFL):  
percentage change in net profit / percentage change in EBIT (2).

A formula for calculating a degree of combined leverage (DCL):  
percentage change in net profit / percentage change in net turnover (3).

The authors designed and classified the principles of and criteria for assessment of degrees of financial leverage – the degree of operating leverage (DOL), the degree of financial leverage (DFL) and the degree of combined leverage (DCL) (Table 1).

## Aim

The **aim** of the research is to define the degrees of financial leverage – the degree of operating leverage (DOL), the degree of financial leverage (DFL) and the degree of combined leverage (DCL) – as measures of financial performance of enterprises and classify the principles of measure assessment in relation to whether the indicator percentage changes used in financial leverage calculations are positive or negative.

## Tasks

Applying the empirical and logical construction methods, the authors analysed six different theoretically possible situations, gave six different examples, defined and classified the principles of leverage degree assessment as different (positive and negative) in relation to the indicator percentage changes used in financial leverage calculations.

## Methods

The research employed the following **methods**: induction – to make scientific assumptions and identify similarities based on individual elements – and deduction – to logically systematize and explain empirical data.

Table 1

Principles of assessment of degrees of financial leverage, depending on different (positive and negative) indicator values to be used in the calculation (profit and loss account indicators used in the calculation are as follows: net turnover, net profit of the reporting period and percentage change in EBIT).

Degrees of operating, financial and combined leverage			
Positive leverage degrees		Negative leverage degrees	
1	2	3	4
Percentage changes in both the numerator and the denominator of an indicator are positive	Percentage changes in both the numerator and the denominator of an indicator are negative	Percentage change is positive in the numerator and negative in the denominator	Percentage change is negative in the numerator and positive in the denominator
Positive (+) if a leverage degree > 1	Negative (-) if a leverage degree > 1	Positive (+)	Negative (-)
Negative (-) if a leverage degree < 1	Positive (+) if a leverage degree < 1		

Source: authors' compilation, 2020

## Conclusions

1. By meaningfully applying the degrees of financial leverage, it is possible to enhance the financial performance of enterprises, particularly those engaged in seasonal business, which is typical of rural enterprises. Enterprise output and turnover could fluctuate owing to seasonality. Regardless of fluctuations in turnover, financial leverage degrees allow measuring and assessing the financial performance of an enterprise for making business decisions.
2. The authors of the paper believe that it is important to take into account percentage changes in the indicators used in the calculation of financial leverage degrees, as it is important whether the percentage changes are positive or negative.
3. Positive leverage degrees should be assessed based on percentage changes (positive or negative) in the indicators used in the calculation of financial leverage degrees.
4. The effects of financial leverage degrees on the financial performance of an enterprise at positive degree values – the percentage changes in both the numerator and the denominator of any indicator used in the calculation are positive – should be viewed as follows: the financial leverage degrees and their effects on the financial performance of an enterprise should be viewed positively (+) if a leverage degree is > 1 and negatively (-) if a leverage degree is < 1.
5. In contrast, at negative degree values, the effects of financial leverage degrees on the financial performance of an enterprise should be viewed depending on what percentage changes in the numerator and the denominator of any indicator – positive or negative – are used in the calculation. If a percentage change is positive in the numerator and negative in the denominator, the effects of financial leverage degrees on the financial performance of an enterprise should be viewed positively (+). If a percentage change is negative in the numerator and positive in the denominator, the effects of financial leverage degrees on the financial performance of an enterprise should be viewed negatively (-).

## AN AHP-BASED ASSESSMENT OF SCENARIOS FOR PROMOTING EMPLOYMENT OF PEOPLE WITH DISABILITIES IN LATVIA

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### Abstract

The study addresses the problem of promoting the employment of people with disabilities. The employment of people with disabilities has multidimensional aspects - economic, social, legal, human rights, discrimination, psychological, ethical and responsibility aspects - with different actors involved representing various kinds of interests. Because of the different issues and the various stakeholders involved, the Analytic Hierarchy Process was found to be the most appropriate method for designing employment promotion scenarios for people with disabilities. As a result, three scenarios to promote the employment of people with disabilities were developed. The experts believe that the optimal scenario is the one in which the EU participates.

### Aim

The *aim* of this study was to develop employment promotion scenarios for people with disabilities and to evaluate the optimal scenario.

### Tasks

The following *research tasks* were created: 1) to study the employment factors associated with persons with disabilities; 2) to explore the interests of involved actors; and 3) based on the analysis of these interests, evaluate scenarios for the promotion of employment of people with disabilities.

### Materials and methods

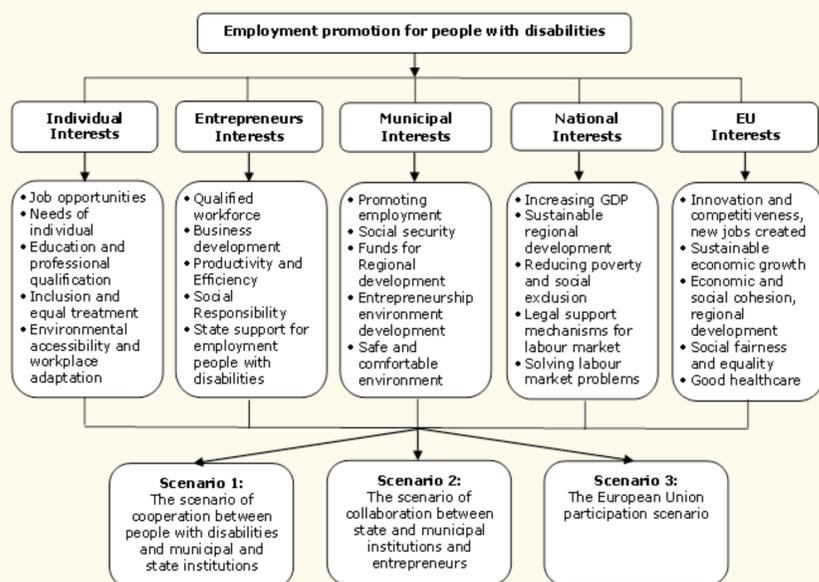
In order to find integrated solutions for the promotion of the employment of people with disabilities, employment reports and statistics, strategic and planning documents of Latvia and EU were analysed.

The *research methodology* employed for this study is based on the Analytic Hierarchy Process. Expert interviews were done in the process through pairwise comparisons, and results relies on the judgements of experts to derive priority scales.

### Results

A large proportion of the population suffers from a disability, and consequently many people continue to be excluded from the labour market. In Latvia, the share of people with disabilities amongst the permanent population is gradually increasing. As of December 2019, there were listed 195,751 persons with disabilities in Latvia, 187,868 of these being adults. Of these, 50,987 are currently employed, making up 27.1% of working age persons (Figure 1), whereas the employment rate for people without disabilities (aged 15-64) was 71.8 % (Ministry of Welfare).

In order to find integrated solutions for the promotion of the employment of people with disabilities, a hierarchical analysis model was developed. As shown in Figure 2, the highest, first level is the goal - the promotion of employment of people with disabilities. On the second level, five actors were identified, with 5 criteria specified for each of them shown on the third level. On the fourth level, three alternative scenarios were set up as a complex solution for the defined goal, each of which involve five stakeholders' interests: individuals with disabilities, entrepreneurs, municipalities, the state and the European Union.

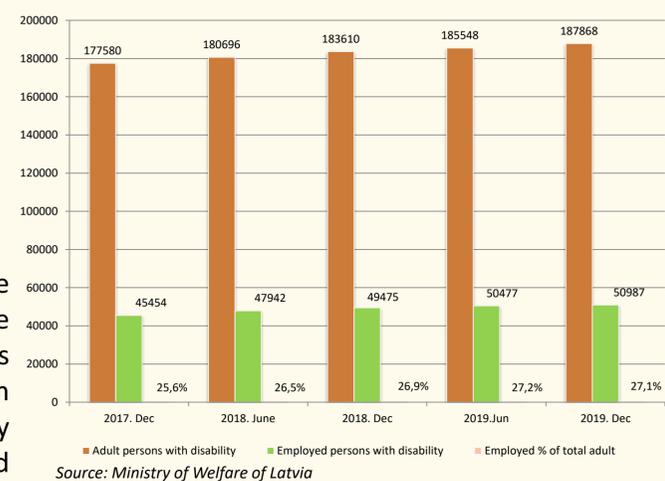


Source: authors' construction

Fig. 2. Structure of the Analytic Hierarchy Process used in the research

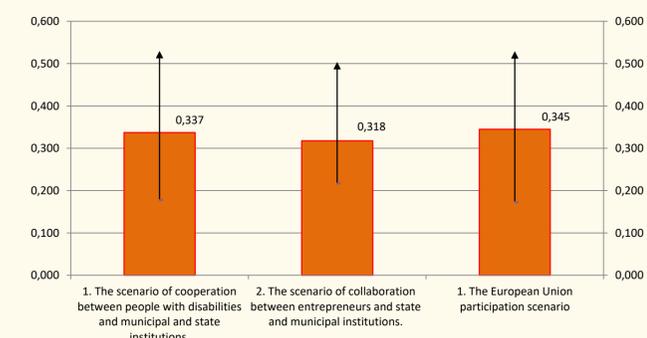
According to the research results, the optimal scenario for promoting the employment for people with disabilities is Scenario 3 involving EU participation (Figure 3). The average value of priority vector is 0.345. In terms of the second most optimal scenario, with an average value 0.337, the experts assessed it to be Scenario 1, where individuals cooperate with municipal and state institutions. Finally, as the third optimal scenario, with an average value of 0.318 was found in the case of Scenario 2, where entrepreneurs collaborate with state and municipal institutions.

For this study the use of AHP as a tool helped to crystallize and allow a better understanding of what is a very complicated problem from an integrated perspective, in order to find and assess optimal solutions for society interests.



Source: Ministry of Welfare of Latvia

Fig. 1. Proportion of Employed Persons with Disability in Latvia, 2017-2019



Source: authors' research results

Fig. 3. Evaluation of scenarios for promoting the employment of people with disabilities

Because the solution to a problem is multidimensional, specific decisions require in-depth study, and can be solved over different time periods. Further research is needed to investigate the advantages and disadvantages of these scenarios, and which of the developed scenarios can serve in the long run.

### Conclusion

- The efficient and fair use of human resources in terms of national economic development, requires various support mechanisms, including a regulatory framework, an active collaboration of all institutions involved, coordinated measures on the part of state institutions, and the support of the European Union.
- Effective solutions for employment for people with disabilities rely solely on an integrated approach. In order to find integrated solutions for the promotion of the employment of people with disabilities, a hierarchical analysis model was developed.
- Three scenarios to promote the employment of people with disabilities were developed: the first is an employee-supportive scenario - a cooperation scenario between individuals and state institutions and municipalities; the second - an employer-supportive scenario - is a collaboration scenario between entrepreneurs, municipalities and state institutions; and the third - is a scenario incorporating European Union participation. Although the results showed slight differences between the three developed scenarios, the European Union participation scenario was considered the optimal one.

### Acknowledgements

The research was supported by the National Research Programme "Latvia's Heritage and Future Challenges for National Sustainability: Challenges and Solutions of Latvian State and Society in an International Framework" (INTERFRAME-LV).

# Analysis of Digitalization referred to in Strategic Policy documents in the LifeLong Education context

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universitāte



## INTRODUCTION

This study is performed in the frame of National Research programme “LATVIAN HERITAGE AND FUTURE CHALLENGES FOR THE SUSTAINABILITY OF THE STATE” project “CHALLENGES FOR THE LATVIAN STATE AND SOCIETY AND THE SOLUTIONS IN INTERNATIONAL CONTEXT (INTERFRAME-LV)”. Research on digitalization mainly focuses on the digitalization of processes and industries, yet less attention is paid to its role in public institution performance, public policy making and territorial development. Fundamental research studies on change processes in public institutions, which could be the result of applying digital transformation approaches, mostly use the terms related to digitalization, such as e-government, digital government or transformative government. Digitalization involves new knowledge and skills, which, in turn, are acquired through education.

## KEY MESSAGES

- Digital transformation forms the basis for the fourth industrial revolution. It is an important component not only for entrepreneurship development, public administration and society at large, but it is also referred to in strategic policy documents as an important future need, emphasizing the importance of lifelong learning.
- Digital competence involves confident, critical and responsible use of digital technologies as well as covers fields such as information and data literacy, communication and cooperation, media literacy, digital content creation, security, intellectual property matters, problem solving and critical thinking.
- Most of the goals and objectives set in the strategic policy documents analysed referred to facilitating particularly the implementation of digitalization in society, enterprises and public administration.
- The policy document of Estonia refers only to the introduction of digitalization, whereas the strategic development plans of Latvia and Lithuania (Fig.2) refer to the entire economy, the environment and society in relation to digitalization.
- Digitalization in lifelong education is mainly referred to as a communication and information tool.
- The figure 1 shows the digital skills of the population in EU Member States – slightly more than half of the EU population, on average, had good or very good digital skills and 40% had poor or very poor digital skills.

## RESEARCH AIM

The research aim is to determine the role of digitalization in strategic policy documents in the context of lifelong education. The following specific research tasks: to theoretically discuss the importance of digitalization and lifelong education and to outline the interrelationships; to perform an assessment of the digital skills of individuals; to analyse and compare the corresponding policy documents of the other Baltic States in the context of digitalization and lifelong education.

## MATERIAL AND METHODS

The paper analysed the National Development Plan of Latvia 2021-2027 (final version), the Digital Agenda 2020 for Estonia and the Progress Strategy “Lithuania 2030”. The research employed the monographic, content analysis and descriptive methods.

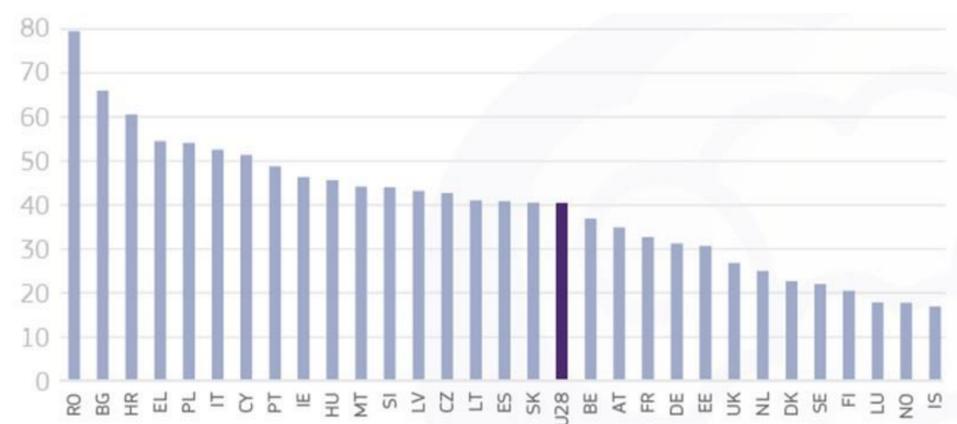


Fig. 1. Percentage of the population with no or poor digital skills, 2018 (Eurostat data, 2018)

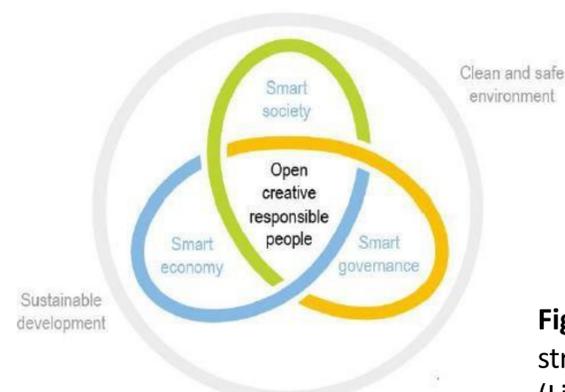


Fig. 2. Concept of the progress strategy “Lithuania 2030” (Lithuania 2030, 2016)

## CONCLUSION

The strategic policy documents of Latvia have been compared with the corresponding documents of the other Baltic States, as the historical and economic development of all three countries has followed a relatively similar scenario.

International Scientific Conference “ECONOMIC SCIENCE FOR RURAL DEVELOPMENT”

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# 21<sup>th</sup> International Scientific Conference ECONOMIC SCIENCE FOR RURAL DEVELOPMENT 2020

12-15 May 2020, Jelgava, Latvia

## CHARACTERISTICS AND CHALLENGES OF THE INTERNET OF THINGS IN ENTREPRENEURSHIP

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### Abstract

The Internet of Things (IoT) is a computing concept that describes the idea of everyday physical objects being connected to the Internet and being able to identify themselves to other devices, and day by day it becomes popular in everyday life as well as in entrepreneurship. The IoT covers broad areas, including manufacturing, the health sector, agriculture, smart cities, security and emergencies among many others. The market for the industrial IoT is estimated to surpass 107 billion euros by 2021 and reach a compound annual growth rate of 7.3% as of 2020. The IoT makes an impact on all industries and provides benefits for various areas of business; however, business may be faced with some risks as well. The research has revealed that the IoT can provide several opportunities for business in all fields of operations – marketing, logistics, accounting and human resource management. However, businesses may be faced with some challenges related to privacy and security, processing, analysis and management of data, as well as monitoring and sensing.

### Hypothesis

the IoT provides significant benefits in entrepreneurship.

### Aim

is to analyse the benefits and risks of the IoT in entrepreneurship.

### Tasks

1. to examine the nature and development of the IoT;
2. to analyse the benefits and risks of the IoT in entrepreneurship.

### Materials and methods

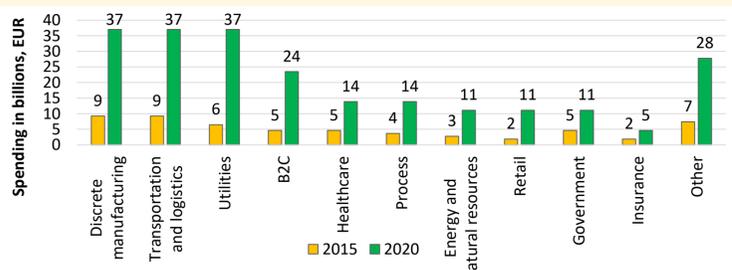
**Research methods:** the descriptive method – to shape the theoretical discussion on the scientific findings and theories on IoT technology; analysis and synthesis – to examine individual problem elements and identify connections among them; induction was used to make scientific assumptions and identify causal relationships from individual elements or facts; deduction was employed to logically systematize and explain empirical data.

**Information sources:** research papers of international scientific conference proceedings and journals about IoT in entrepreneurship.

### 1. Nature and development of the IoT

In scientific literature, the IoT has been attributed a variety of descriptions. It has been described as a network, a paradigm, a concept and an ecosystem. Within this research paper, the IoT is defined as a computing concept that describes the idea of everyday physical objects being connected to the internet and being able to identify themselves to other devices. The IoT is an Internet of three things, namely, people to people, people to things and things to things interacting through the Internet.

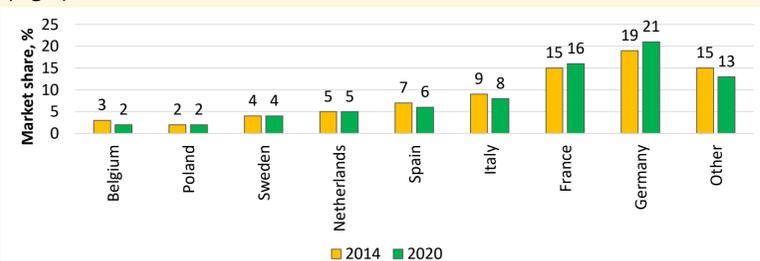
The IoT covers broad areas, including manufacturing, the health sector, agriculture, security and among many others. The market for the industrial IoT is estimated to surpass 107 billion euros by 2021 and reach a compound annual growth rate of 7.3% as of 2020. The investments made in the IoT are estimated to double by the year 2020, and the industries that would be making the largest investments in this market are manufacturing, logistics and utilities (Fig. 1).



Source: authors' construction based on Statista 2020

Fig. 1. Spending on the IoT worldwide in 2015 and 2020, billions EUR

In terms of investments made region wise, the major share of spending is done in the Asia Pacific region (CAGR – 7.6% in 2020), followed by North America (6.5%) and Western Europe (6.3%). Even though every region has started with implementing the IoT, it is the developed regions that are maintaining a lead and are estimated to continue doing so. The European market is growing owing to an increase in the number of IoT devices (Fig.2).



Source: authors' construction based on Statista 2020

Fig. 2. IoT market share in European countries in 2014 and 2020, %

Germany is estimated to have the largest IoT market share in Europe in 2020. Together the top six countries make up 75% of the European IoT market. In the coming years, the IoT market is expected to grow in all the European countries. To be more specific, the Western European countries which also happen to be the major investors in the IoT hold the leading positions when it comes to market position. IoT connections are growing at a fast pace in Europe, and this growth is attributed to quicker acceptance of the IoT in several verticals.

### 2. Opportunities and risks of the IoT in entrepreneurship

The IoT makes a way for a lot more opportunities than what is being put into use today. In order for businesses to be able to pursue these opportunities, businesses need infrastructure that can support the IoT. Even though the IoT sounds as a term that matters only to programmers or business that are inclined more to technology, however, in reality it makes an impact on all industries and provides benefits for different departments of the company.

Table 1  
Benefits and risks of implementing the IoT in entrepreneurship

	Benefits of IoT	Risks
<b>Marketing</b>	<ul style="list-style-type: none"> <li>• Effective link between the selling and the customer data.</li> <li>• The consumption pattern of products by the consumer can be monitored.</li> <li>• Advanced functionalities.</li> <li>• More engagement with the customers.</li> </ul>	<ul style="list-style-type: none"> <li>• Customer data privacy issues.</li> <li>• Creating proper experience for customers without being annoying.</li> </ul>
<b>Accounting</b>	<ul style="list-style-type: none"> <li>• Easier access to client information.</li> <li>• Better business planning.</li> <li>• Improve accuracy of budgets.</li> <li>• Improve forecasting.</li> </ul>	<ul style="list-style-type: none"> <li>• Corrupt data could put client at risk.</li> <li>• Different privacy policies for different companies.</li> </ul>
<b>Logistics</b>	<ul style="list-style-type: none"> <li>• Optimum asset utilization.</li> <li>• Easier material handling.</li> <li>• Better warehousing and inventory control practices.</li> <li>• Easier fleet monitoring.</li> <li>• Faster tracking and tracing.</li> <li>• Predictive maintenance of equipment.</li> </ul>	<ul style="list-style-type: none"> <li>• Connectivity issues among the large number of devices.</li> <li>• Huge amount of data needs to be processed.</li> </ul>
<b>Human resources</b>	<ul style="list-style-type: none"> <li>• Increasing use of wearables.</li> <li>• Evaluating employee productivity.</li> <li>• Efficient and quicker communication.</li> <li>• Employee behaviour and well-being can be monitored.</li> <li>• Flexible working environment.</li> <li>• Measuring responsiveness of new recruits.</li> </ul>	<ul style="list-style-type: none"> <li>• Unwillingness of employees to give data.</li> <li>• Misleading data would waste management's time and effort.</li> <li>• Redundant data.</li> </ul>
<b>Management</b>	<ul style="list-style-type: none"> <li>• Helps in decision making process</li> </ul>	<ul style="list-style-type: none"> <li>• If the data generated are insufficient, it could lead to making misleading decisions.</li> <li>• If the data are too much, it could waste the time and effort of the managers to come up with ways to sort and act upon the data.</li> </ul>

Source: authors' compilation based on Yan B., Huang G., 2009; Vivekananth P., 2016; Sullivan J., 2013; Tao F. et al., 2014; Vankani M.J., 2020; Wang L., Ranjan R., 2015; Peppet S.R., 2014; Fecheyr-Lippens B. et al., 2015

The IoT offers numerous benefits to the varied range of diverse areas in entrepreneurship. This could mean that the entrepreneurs with a creative mindset, urge to excel and having a risk taking attitude could witness opportunities to capitalize on this and become leaders of the industry. This could also help with developing new revenue sources and having a new business line setup all together and with the possibility of the IoT to be deployed in every step of business, the likely gains would be huge.

### Conclusions

1. The IoT plays a central role in entrepreneurship, and it has potential to increase the availability of information and is likely to transform enterprises in virtually every industry around the world.
2. The concept of IoT has been attributed a variety of descriptions. It has been defined as a network, a paradigm, a concept, an ecosystem and a global network infrastructure. Within this research paper, the IoT is defined as a computing concept that describes the idea of everyday physical objects being connected to the Internet and being able to identify themselves to other devices.
3. The IoT covers broad areas, including manufacturing or the industrial sector, the health sector, agriculture, smart cities, security and emergencies among many others. The market for the industrial IoT is estimated to surpass 107 billion euros by 2021 and reach a compound annual growth rate of 7.3% as of 2020. The IoT makes an impact on all industries and provides benefits for various areas of business.
4. The IoT can provide several opportunities for business in any field of operations – marketing, logistics, accounting, human resources and management of the company. In human resource management, the IoT can be useful in evaluating employee productivity, provide quick communication and monitor employee behaviour and well-being. In the marketing field, it can be used to provide effective engagement and monitor customers, while in accounting it provides easier access to the various types of information and financial planning. In logistics, it provides optimum asset utilization, warehouse and inventory control practises and faster tracking and tracing.
5. There are numerous risks and challenges that require attention to the use of the IoT. Mainly these risks related to privacy and security, processing, analysis and management of data, as well as monitoring and sensing.