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**The Evolution of Innovative Entrepreneurship Indicators**  
**in Europe. Implications for the Labour Market**

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**Abstract**

*Innovation and Entrepreneurship go hand in hand and generate economic growth, raise the standard of living, and contribute to sustainable development. Innovative entrepreneurship implies both the exploitation of new business ideas and models and the continuous strengthening of R&D activities. At present, the majority of policymakers from European countries are concerned to strengthen the business environment by supporting R&D activities and business innovation. The purpose of this article is to do a comparative analysis of innovative entrepreneurship in European countries and to determine the implications of innovative entrepreneurship for the labour market. The research methodology includes a comparative analysis of innovative entrepreneurship in Europe. To visualize the status of innovative entrepreneurship in European countries a database with statistical indicators referring to business innovation in Europe was used. The database was provided by the Organization for Economic Cooperation and Development (OECD) for the period 2013-2019. The indicators referring to business innovation are classified according to the type of innovation, public financial support for innovation activities, cooperation partners in innovation activities, protection of intellectual property rights, innovation and participation in international markets, expenditure on innovation activity, turnover in innovation, and employment in the innovation sector. The comparative analysis is followed by an examination of the implications of innovative entrepreneurship on the labour market. The results of the comparative analysis highlight various gaps among the European countries in terms of business innovation. Furthermore, the listing of implications of innovative entrepreneurship on the labour market highlighted that innovation can have both positive and negative impacts on employment.*

**Keywords:** innovative entrepreneurship, innovative entrepreneurship indicators, Europe, labour market.

**JEL Classification:** O31, M21, Y1, O52, J01.

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## 1. Introduction

Entrepreneurship is an important field of research that has been investigated by numerous economists and researchers from all over the world. Many theories regarding entrepreneurship have been approached since the origin of entrepreneurship until today. Among other correlations made to define and describe the concept of entrepreneurship, innovation and entrepreneurship are a powerful example of an association that illustrates the importance of new products and processes for the development of businesses.

Being a part of social sciences, entrepreneurship was first described as a field that investigates human actions and the role of employees in the production process. Not long afterward, several economists stated that entrepreneurship contributes to economic growth and the improvement of competitiveness. This role of entrepreneurship is in modern times admitted by all the economies of the world since the establishment of new businesses contributes to the creation of new jobs and a competitive business environment. Sequentially, entrepreneurship gains a new role in the context of the massive global challenges, it stimulates the innovation process. Innovation is nowadays a key factor for the development of new, competitive, and sustainable businesses. In the field of entrepreneurship, innovative entrepreneurs are considered to be those individuals endowed with a vision for the future.

Besides the traditional role that entrepreneurs have in a businesses, such as supervision and control of the production processes and employees, entrepreneurs are responsible for their decisions and actions. Consequently, they have to take risks. Further, entrepreneurs have to ensure resource efficiency to develop a sustainable and competitive business.

**Table 1. Theories of Entrepreneurship and Entrepreneur**

<b>Authors</b>	<b>Theories</b>
Richard Cantillon (1680-1734)	Entrepreneurs take risks
Adam Smith (1723-1790)	Entrepreneurship investigates human actions and produces changes in the division of labour
Jean-Baptiste Say (1767-1832)	Entrepreneurship stimulates economic development
Carl Menger (1840-1921)	Entrepreneurs perform economic calculations and supervise the production process
Ludwig von Mises (1881-1973)	Entrepreneurs ensure resource efficiency
Joseph Schumpeter (1883-1950)	Entrepreneurship stimulates innovation and change
Israel Kirzner (b. 1930)	Entrepreneurs are focused on profit and price differences

*Source:* Authors' own research findings based on economic theories.

In recent years, innovative entrepreneurship became an important key driver for economic development. Many countries began to introduce in their entrepreneurship strategies and policies issues concerning innovation in firms. Innovation in entrepreneurship includes not only new innovative firms that emerge on the market, but also those that already exist on the market and adopt new technologies. For instance, there are different types of firms that adopt innovation, such as product innovative firms, process innovative firms, organizational innovative firms, or marketing innovative firms (OECD, 2021).

The global challenges that have occurred in the last years generated new technological changes within firms and challenged the existing entrepreneurs to become more innovative. This suggests that innovative entrepreneurship can be considered a tool to overcome global challenges.

There have been several economists, researchers, and entrepreneurs who attempted to define the concept of innovative entrepreneurship or the relationship between innovation and entrepreneurship. Certain definitions highlighted the importance of innovation for the development of the business environment and the improvement of people’s lives.

Further, some definitions underline that entrepreneurship innovation involves the development of new innovative business ideas, which can be later harnessed as business opportunities. Alternatively, the identification of new innovative business ideas cannot be achieved without educated people. Human resources are considered to be the key to innovation and success in the business environment. It can be concluded that innovative entrepreneurship comprises multiple aspects, such as human resources, new technologies, and new business ideas.

**Table 2. Definitions of innovative entrepreneurship**

<b>Authors</b>	<b>Definitions</b>
William Pollard (1828-1893)	“Learning and innovation go hand in hand. The arrogance of success is to think that what you did yesterday will be enough for tomorrow.”
Peter Drucker (1909-2005)	“Entrepreneurs must deliberately explore sources of innovation and change to identify new opportunities for successful innovation in firms.”
Ted Levitt (1925-2006)	“Just as energy is the basis for human life and ideas for innovation, innovation is also a key spark for change, improvement, and human progress.”
Warren Bennis (1925-2014)	“By definition, innovation will not be accepted at the first attempt. Before innovation is accepted and internalized in the firm, multiple experiments, endless demonstrations, and monotone practice are demanded. ”
Watts Humphrey (1927-2010)	“Innovation is the process of transforming ideas into a composition that can be manufactured and marketable.”

<b>Authors</b>	<b>Definitions</b>
Steve Jobs (1955-2011)	“Innovation is not related to how many dollars in R&D someone has. When Apple designed Mac, IBM spent at least a hundred times more on R&D. It is not about money. It's about the people you have, how you are led and how much you achieve.”
Innovation Policy Paltform	“Innovative entrepreneurship arises from the intersection of three key elements within the economy: innovative businesses, fast-growing young businesses, and small and medium-sized firms (SMEs).”
Oslo Manual (OECD)	“Innovation is [...] a new or improved product or process (or a combination thereof) that differs significantly from previous products or processes of the unit and which has been made available to potential users (product) or put into service by the unit (process).”

*Source:* Authors' own research findings based on literature.

It can be concluded that innovative entrepreneurship covers multiple aspects, such as human resources, new technologies, and new business ideas. Technological innovations contribute to the development of efficient business models that can be replicated in other areas. The success of the existing firms on the market demands innovative products and processes and innovative strategies of organization and marketing. Innovative entrepreneurship encourages the creation of new firms and jobs, improves the standard of living, and contributes to the sustainable development of the business environment.

## 2. Research Methods

The research methodology utilized in the article included a comparative analysis of innovative entrepreneurship in Europe. To indicate the situation of innovative entrepreneurship in Europe, a database with indicators referring to Business Innovation was selected. Furthermore, the database included statistical information for 23 European countries (Table 3). In the processing of the statistical data, the abbreviations for European countries have been used.

**Table 3. European countries included in the comparative analysis of Business Innovation indicators**

<b>Countries</b>	<b>Abbreviation</b>	<b>Countries</b>	<b>Abbreviation</b>
Austria	AT	Ireland	IE
Belgium	BE	Italy	IT
Czechia	CZ	Lithuania	LT
Germany	DE	Luxembourg	LU
Denmark	DK	Latvia	LV

<b>Countries</b>	<b>Abbreviation</b>	<b>Countries</b>	<b>Abbreviation</b>
Spain	ES	Netherlands	NL
Estonia	EE	Poland	PL
Finland	FI	Portugal	PT
France	FR	Slovakia	SK
United Kingdom	GB	Slovenia	SI
Greece	GR	Sweden	SE
Hungary	HU		

*Source:* Adapted from the Organisation for Economic Co-operation and Development (OECD).

The statistical database provided by the Organization for Economic Cooperation and Development (OECD) included seven indicators classified according to the types of innovation for firms: types of innovation, public financial support for innovation activities, innovation co-operation partners, innovation and participation in international markets, innovation expenditures, turnover expenditures, and employment-based innovation indicators.

**Table 4. Business Innovation indicators**

<b>Types of innovation for firms</b>	<b>Indicators</b>
Types of innovation	- Innovative enterprises, as a percentage of total enterprises
Public financial support for innovation activities	- Enterprises receiving public support for innovation, as a percentage of total enterprises
Innovation co-operation partners	- Enterprises co-operating on innovation activities, as a percentage of product and/or process innovation-active enterprises
Innovation and participation in international markets	- Enterprises operating in international markets, as a percentage of total enterprises
Innovation expenditures	- R&D expenditure as percentage of total expenditures on innovation activities
Turnover from innovation	- Share of turnover from new or significantly improved products that were new to the market
Employment-based innovation indicators	- Employment in innovative enterprises, as percentage of total employment

*Source:* Adapted from the Organisation for Economic Co-operation and Development (OECD).

The comparative analysis concerning Business Innovation in European countries is followed by an examination of the implications of innovative

entrepreneurship on the labour market. The examination included a listing of implications of innovative entrepreneurship on the labour market.

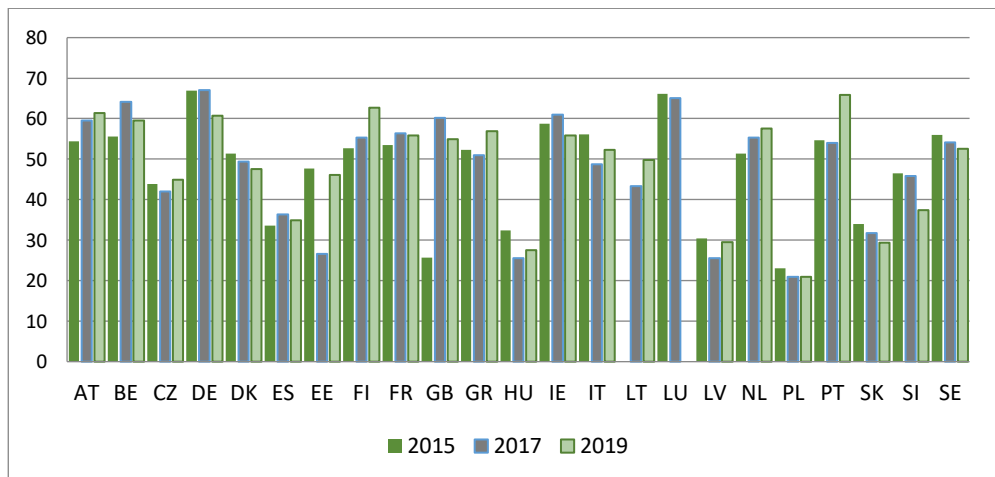
### 3. Findings

This section of the article comprises a comparative analysis of Business Innovation indicators and an examination of the implications of innovative entrepreneurship on the labour market. After the processing of the statistical data referring to Business Innovation in Europe, six graphs that show the evolution of the indicators selected for analysis have been outlined.

#### 3.1. Comparative Analysis of Business Innovation Indicators in European Countries

##### a. Innovative firms, as a percentage of total firms

The share of innovative firms in the total number of firms is an important indicator that illustrates the level of innovation in firms. In 2015, the largest share of innovative firms in the total number of firms was in the following five countries: Germany (66.94%), Luxembourg (66.13%), Ireland (58.74%), Italy (56.15%), and Sweden (55.93%). Poland (23%), United Kingdom (25.65%), Latvia (30.43%), and Hungary (32.47%) recorded the lowest share. The most innovative firms in 2017 were Belgium (64.17%), United Kingdom (60.24%), and Austria (59.48%). Conversely, in 2019, the most innovative firms have been recorded in Portugal (65.84%) and Finland (62.64%). Between 2017 and 2019, in Poland, Hungary, Latvia, and Slovakia, the firms carried out the least progress referring to innovation activities.

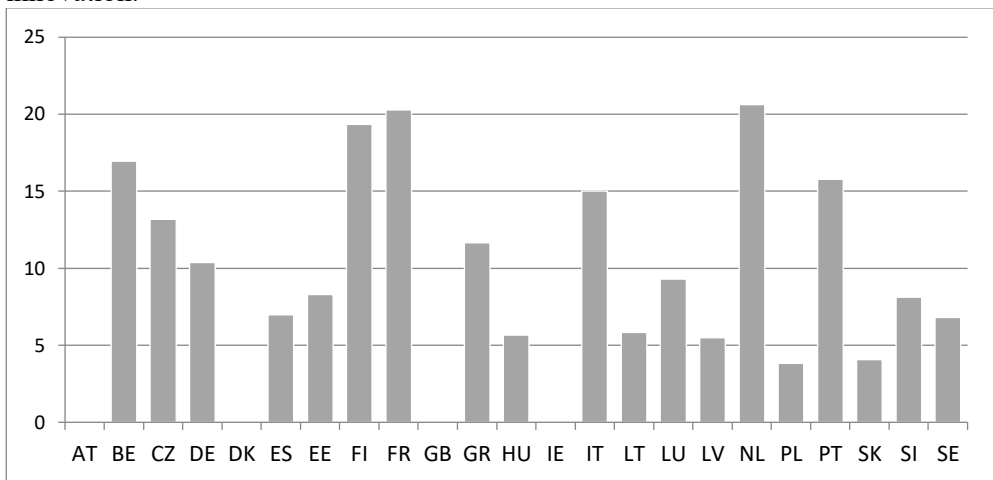


**Figure 1. Innovative firms, as a percentage of total firms (Europe, 2015-2019)**

Source: Adapted from Business Innovation statistics of OECD.

*b. Firms receiving public support for innovation, as a percentage of total firms*

Public support for innovation is a necessary intervention for many firms, especially for those that plan to adopt technological innovations in their activities. Likewise, public support for innovation is also significant for future entrepreneurs who want to capitalize on an innovative business idea. As regards the indicator related to public support for innovation, most companies that received this support in 2019 were registered in the Netherlands (20.64%), France (20.28%), Finland (19.35%), Belgium (16.97%), Portugal (15.76%) and Italy (15.02%). On the other hand, in the same year, the firms from Poland (3.84%), Slovakia (4.07%), Latvia (5.48%), and Hungary (5.65%) were granted the lowest public support for innovation.

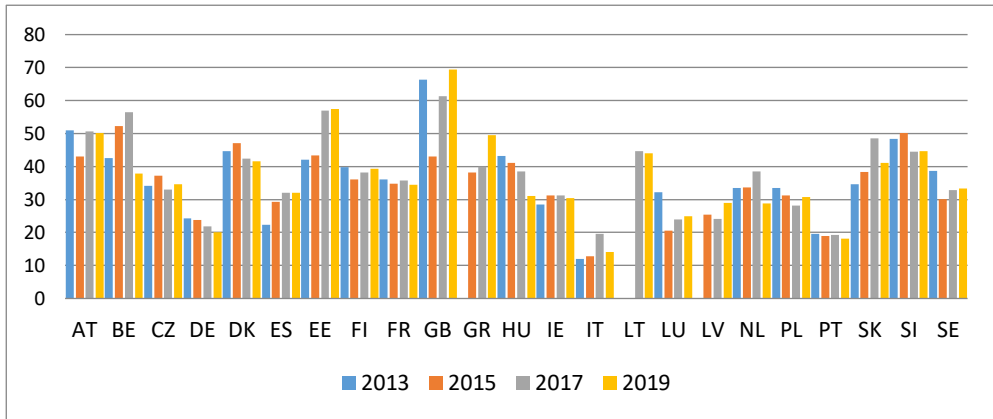


**Figure 2. Firms receiving public support for innovation, as a percentage of total firms (Europe, 2019)**

*Source:* Adapted from Business Innovation statistics of OECD.

*c. Firms co-operating on innovation activities, as a percentage of product and/or process innovation-active firms*

Cooperation on innovation activities constitutes major opportunities for firms to access new innovative technologies. Diverse innovative technologies will support firms to expand their production activities and to penetrate new international markets. A successful operation within firms would be to share their knowledge to increase the quality of products and services. United Kingdom, Estonia, Belgium, and Austria own the largest number of firms that cooperate on innovation activities, as a percentage of product and/or process innovation-active firms. On the other hand, the countries where the European firms cooperated less on innovation activities have been Italy, Luxembourg, Latvia, and Portugal.

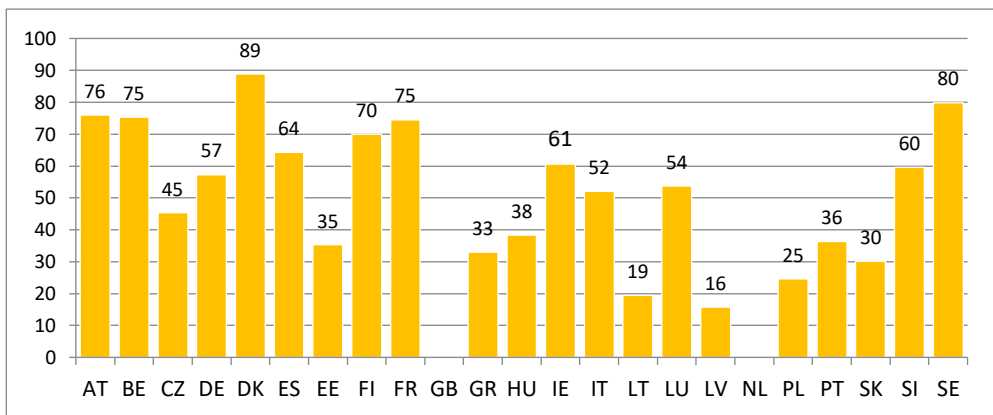


**Figure 3. Firms co-operating on innovation activities, as a percentage of product and/or process innovation-active firms (Europe, 2013-2019)**

Source: Adapted from Business Innovation statistics of OECD.

*d. R&D expenditure as a percentage of total expenditures on innovation activities*

R&D expenditure is important for both business development and the economic progress of countries. Many firms perform research and development activities within their businesses as a perspective of technological change. Consequently, R&D expenditure is a major element for continuous growth and sustainable development. In 2019, R&D expenditure as a percentage of total expenditures on innovation activities reported a high level in Germany (84%), Sweden (80%), Austria (76%), Belgium (75%), and France (75%). In Latvia, Lithuania, and Poland, has been registered an opposite circumstance, with the lowest level of R&D expenditure.



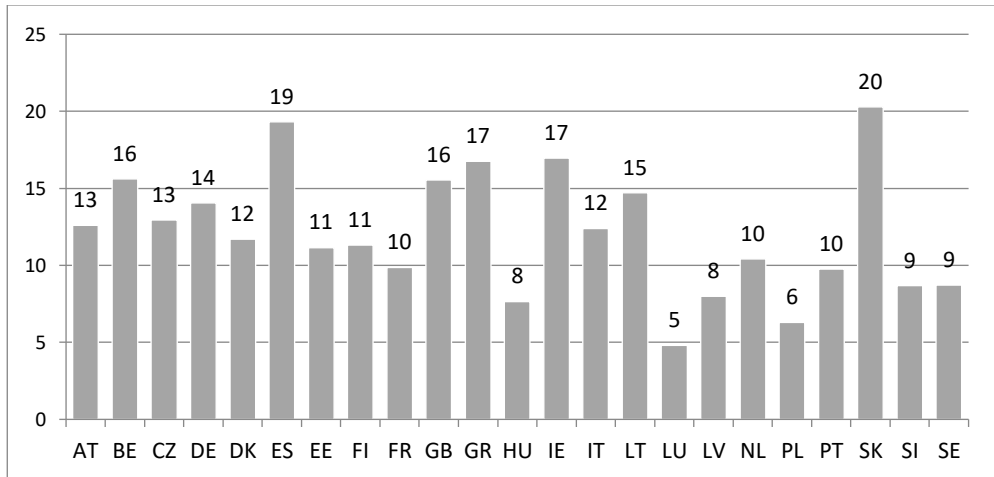
**Figure 4. R&D expenditure as a percentage of total expenditures on innovation activities (Europe, 2019)**

Source: Adapted from Business Innovation statistics of OECD.



*e. Share of turnover from new or significantly improved products that were new to the market*

The European firms should consider identifying new product opportunities since customers nowadays have become more and more demanding. In this respect, firms have to exploit new technological challenges. Products should be characterized by uniqueness, mobility, adaptability, and sustainability. In 2019, the highest share of turnover from new or significantly improved products was recorded in Slovakia (20%), Spain (19%), Ireland (17%), and Greece (17%). A reversed situation has been recorded in Luxembourg (5%) and Poland (6%), with a comparatively low share of turnover from new or significantly improved products. Despite this circumstance, in all European countries firms registered a low share of turnover from new or significantly improved products.

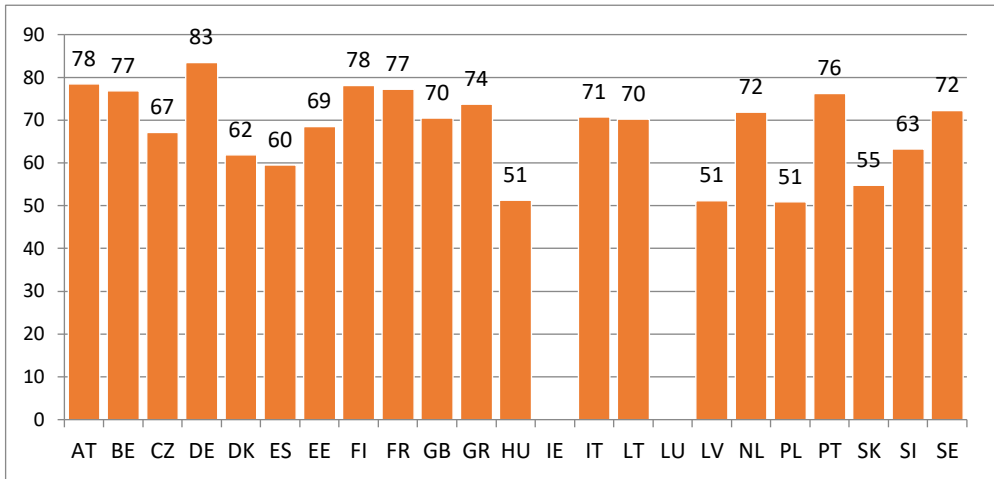


**Figure 5. Share of turnover from new or significantly improved products that were new to the market (Europe, 2019)**

Source: Adapted from Business Innovation statistics of OECD.

*f. Employment in innovative firms, as a percentage of total employment*

Generally, innovation is a source of economic progress for both firms and nations. This suggests that innovative technologies create new jobs and business innovation is a subject for employment creation. However, there are circumstances when innovation is considered a threat to many existing jobs. The situation of employment in innovative firms in Europe highlights significant levels in all European countries. The highest values of employment in innovative firms, as a percentage of total employment, were reported in Czech Republic (83%), Austria (78%), Finland (78%), France (77%), Belgium (77%), and Portugal (76%). Values below 50% are recorded in Hungary (51%), Latvia (51%), Poland (51%), and Slovakia (55%).



**Figure 6. Employment in innovative firms, as a percentage of total employment (Europe, 2019)**

Source: Adapted from Business Innovation statistics of OECD.

### 3.2 Implications of Innovative Entrepreneurship on the Labour Market

Innovative entrepreneurship has far-reaching implications on individuals, businesses, and countries. A major implication of innovative entrepreneurship is on the labour market and employment growth. As mentioned in the previous analysis of employment in European innovative firms, innovation is a factor that influences the employment process, and it can either create new jobs or destruct the existing ones. The following paragraphs introduce several significant implications of innovative entrepreneurship for the labour market, as follows:

- (1) The diversification and development of new products, processes, organization, and marketing methods in innovative firms could generate the creation of new businesses and new jobs.
- (2) Innovation policies regarding entrepreneurship should support and stimulate the creation of new innovative firms to increase economic growth.
- (3) Research and development activities can boost the creation of new innovative businesses, which in turn could generate new competitive jobs.
- (4) Business innovation could generate the emergence of new economic sectors, with new classifications of jobs.
- (5) Innovation activities may have an impact on the existing jobs in the labour market and among the circumstances that generate this state are the level of qualification, the working age, and the innovative technologies that need to be managed.
- (6) The newly established innovative firms can implement innovative technologies that do not demand employment, leading up to a reduction in labour demand.

- (7) Public financial support for innovation activities stimulates entrepreneurship and encourages entrepreneurs to exploit new innovative business ideas, which will create new jobs in the future.
- (8) The firms that cooperate at the national and international level on innovation activities (with suppliers, customers, higher education institutions, or governmental organizations) can create a network with new projects and business ideas that will involve new jobs.
- (9) The transition of innovative firms towards international markets could produce exchanges of experience between employees, access to new innovative technologies, and the emergence of new jobs.

The European business environment requires nowadays entrepreneurs who can identify and exploit new business opportunities. Business innovation is correlated with sustainability and competition. The next generation of entrepreneurs must concentrate on the innovative technologies that emerge worldwide. In addition to the establishment of new firms, the refurbishment of existing ones is also in demand at present. Innovation and entrepreneurship are both fundamental for economic progress and sustainable development.

#### **4. Conclusions**

Innovation and Entrepreneurship are both essential factors for economic progress and sustainable development. The comparative analysis performed in the article provided evidence on European business innovation. The evidence highlighted various gaps among European countries. As regards the number of innovative firms in Europe, countries such as Germany, Luxembourg, Ireland, Italy, and Sweden are characterized by a high number of firms that perform innovative activities.

The European countries where the firms received the highest level of public support for innovation have been the Netherlands, France, Finland, Belgium, Portugal, and Italy. Cooperation in innovation activities is also an important indicator related to business innovation and the results highlighted that the firms from the United Kingdom, Estonia, Belgium, and Austria cooperated the most on innovation activities.

R&D expenditure was also analysed and the results emphasized high values in Germany, Sweden, Austria, Belgium, and France. The firms from all European countries have recorded a low share of turnover from new or significantly improved products. Furthermore, the highest share of turnover from new or significantly improved products has been recorded in Slovakia. Subsequently, employment in innovative firms has recorded high values in all European countries, with important values in the Czech Republic, Austria, Finland, France, Belgium, and Portugal.

In nearly all comparative analysis of business innovation (innovative firms, firms receiving public support for innovation, firms co-operating on innovation activities, R&D expenditure, and share of turnover from new or significantly

improved products that were new to the market), Latvia, Hungary, and Poland have reported decreased rates of the indicators.

Furthermore, innovative entrepreneurship has major implications on the labour market. Innovative technologies can influence employment both positively and negatively. It can create new jobs and extend the business environment or it can affect the existing jobs.

The research is limited to statistical analysis, but the interpretations require an in-depth examination of policies and strategies that European countries have implemented for the development of innovative entrepreneurship. Future research concerning innovative entrepreneurship would be to identify and compare the European policies regarding innovative entrepreneurship.

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