Outsourcing as a Modern Form of International Labor Division

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Summary
For the implementation of innovative products or services companies use different innovation strategies, in particular, outsourcing is quite widespread, given the high level of specialization and professionalism of companies that provide such services. The aim of this article was to evaluate the link between outsourcing of innovative activities and indicators of companies' efficiency. The methodology of the research includes the methods of correlation analysis and regression analysis to reveal the correlation between the use of outsourcing of innovative products and services and the turnover of the EU enterprises. The results show a high level of innovative activity of EU enterprises (50.3% innovatively active). Innovative business processes are the most widespread form of innovation activity (41% of enterprises implement business processes, and the indicator is higher than 41% in the most developed EU countries). The turnover of enterprises with new or substantially improved products was found to grow by 10.92% for the period 2016-2018. The correlation analysis shows weak direct links between the indicator of turnover growth and the number of enterprises that have independently implemented innovations, or have implemented innovations jointly with third-party companies, or using outsourcing services. The highest level of direct connection was found between the growth of turnover of enterprises that launched a new product for the market and the growth of the number of enterprises that implemented innovations with the involvement of organizations (correlation 0.273). Based on the regression analysis it was found that with a 1% change in the growth rate of the number of innovation-active enterprises, the growth rate of turnover from new or improved products increased by 5.67%. At the same time, with a 1% change in the growth rate of the number of enterprises that implement innovation through outsourcing, the growth rate of turnover from new or improved products will increase by 7.15%.

Key words: Outsourcing, International Labor Division, Business Process Outsourcing, Outsourcing and Innovation, Innovation-Active Companies.

1. Introduction

Economic agents from different countries interact through various forms of international cooperation, subcontracting, integration, outsourcing to ensure competitive advantages, reduce costs, and increase economic efficiency and implementation of innovations. For the implementation of innovative products or services companies use different innovation strategies, in particular outsourcing is very widespread, given the high level of specialization and professionalism of companies that provide such services. Developments in technology contributes to the spread of outsourcing, due to the simplification of procedures of interaction and cooperation between the parties. A widespread form of outsourcing is the involvement of outside organizations in the automation and implementation of innovative business processes.

Within the EU, there is a strong dynamism to the development of the sphere of services, which directly affects innovation and outsourcing the development of innovative products or services. This impact is a driver of the service economy due to the potential to solve new business problems, mainly through the effect of a high level of competition [1]. The above mentioned testifies to the relevance of studying the link between outsourcing in the sphere of development and implementation of innovations (products and business processes) and indicators of companies' efficiency.

The aim of the article is to evaluate the link between outsourcing of innovation activities and indicators of efficiency of enterprises.

In order to achieve the aim, the following tasks were defined:

1. To review the literature on the state of outsourcing as a way to implement different types of innovations.
2. To analyze the trends in various EU countries in innovation activity of enterprises and use of outsourcing for implementing innovations.
3. To conduct a correlation analysis of the correlation between the implementation of innovations based on outsourcing and in-house forces of enterprises and efficiency indicators (rate of turnover growth).

2. Literature review

Outsourcing is analyzed and discussed in the field of work and labor organization, management and production organization from the mid-1980s to the beginning of the 1990s. Economists have analyzed a new form of labor division in terms of cost, relational rents, and client/supplier collaborative strategies [2]. For two decades, outsourcing

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has been studied as a business practice of transferring jobs, knowledge, and technology from high-cost countries to low-cost countries [3].

Literature in the field of labor sociology, economics and management focuses mainly on the organization of production and the process of work in outsourcing: management and regulation of workforce, production and system links, as well as management and the business administration. The other group of outsourcing studies is based mainly on sociology and anthropology and tends to look at the organization of production (relocation, decentralization, etc.), working conditions (types of contracts, flexibility, differentiation in wages, etc.) and labor relations (collective action, multiplicity of trade union representatives, fragmentation, individuation, etc.).

Outsourcing is considered as a new type of trade, which due to globalization has been transformed into an economic model [4]. Outsourcing, as a form of international labor division, has been discussed in the literature since the early 2000s, which was facilitated by such factors of its development as the reduction of trade costs, reduction of the level of corruption, improvement of conditions of contracts, which positively influenced the level of intra-firm imports within different regions of the world [5]. Contract manufacturing and vertical specialization of transnational production chains due to the potential for cost reduction, particularly in the payment of staff in the developing countries also contributed to the development of outsourcing [6]. The reasons for outsourcing vary greatly from country to country. Access to specialized competencies is a valid reason for outsourcing, but access to innovation of suppliers is not a valid reason for outsourcing [7; 8]. As a result of widespread outsourcing, international value creation lanes and production organization are being reorganized [5; 9]. For example, European companies use outsourcing and offshore production in the Nordic-Central and Nordic European countries through the potential of reducing the cost of production [10; 11]. As a result, the Nordic Europe becomes an important place for the international organization of production of European firms. Global outsourcing of services, which is seen as the basis for economic growth, has the greatest impact on the international division of labor [4; 12; 13]. The study of Li & Wang proves that outsourcing of services in Chinese industry has a significant positive impact on productivity per capita and the actual volume of production, with an insignificant effect on employment [14]. Outsourcing of financial services is becoming a new feature of international industry transfer [15]. Bilan et al. consider outsourcing as a new form of business process organization [16].

The study by Zhang, Yan & Huo based on an assessment of the effects of outsourcing in agriculture found that, on average, outsourcing of apple production increased the efficiency of apple production technology in farmers by 5, 60%, their labor productivity by 2121.48 kg/cow, land productivity by 334.50 kg/mu, capital productivity by 0.05 kg/Yuan and virus from apple sales by 13,300 Yuan [17]. However, the net income of farmers from the sale of apples decreased by 5000 Yuan on average. Thus, the efficiency of labor outsourcing of apple production is reduced by the increase in labor costs, which, in turn, is reduced. The study by Deng, Xu, Zeng & Qi found that farm households with below-average productivity tend to outsource land treatment; conversely, farm households with above-average productivity outsource land treatment independently [18]. The productivity was increased by 25.61% for farm households that outsourced their land treatment processes. In addition, 10.86% of farm households with above-average productivity were theoretically estimated to have increased their productivity.

Thus, a review of the literature indicates that the factors of outsourcing development and expansion, advantages and disadvantages of outsourcing, collaboration strategies, organization of production and work processes, working conditions and labor relations, outsourcing services. However, an understudied area is the link between outsourcing in the development and implementation of innovations (products and business processes) and the performance of enterprises.

3. Methodology

The study uses a statistical analysis of EU countries' indicators from the Eurostat database for 2016 and 2018 to explain how outsourcing services for the development of innovative products, services or updating of existing services affects the turnover of enterprises that are innovatively active. We first analyzed the number of enterprises with innovative activities in EU-27; the number of enterprises that introduced new or improved processes by type of innovation in 2018; the number and share of enterprises that introduced an innovation by type of innovation, developer, number and share in 2018 in EU-27; turnover of enterprises from new or significantly improved products in EU-27, 2016, 2018. Based on the above indicators a correlation analysis was carried out to assess the differences between the impact on the growth rate of turnover of a number of enterprises, that independently implement innovations and the number of enterprises that engage outside organizations to implement innovations in products or processes. The linear models of dependence are evaluated to reveal the quantitative link between the variables, the significance of which is evaluated using the coefficient of determination.

4. Results

Within the EU-27, 50.3% of enterprises are engaged in innovative activities, of which 46.5 are fully innovative, the share of enterprises with suspended/permitted innovation activities is 7.4%, and the share of enterprises with ongoing innovation activities is 26.2% (see Fig. 1).

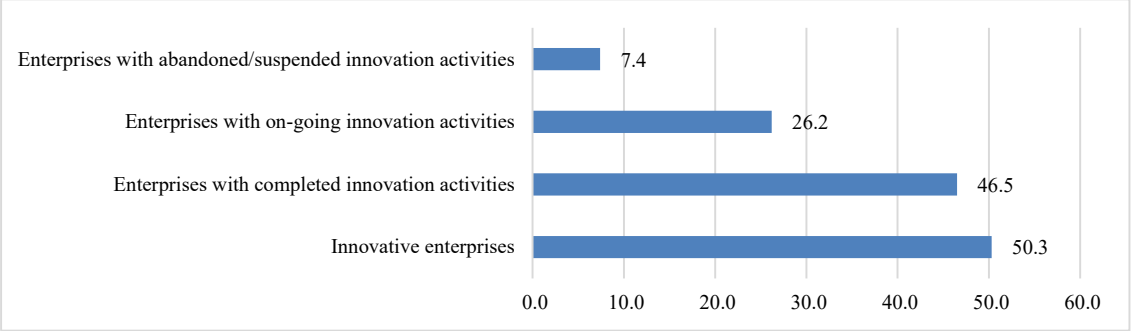


Fig. 1. Enterprises with innovation activities during 2018 in EU-27 countries, % of all enterprises
Source: Eurostat [19]

Among the main types of innovative activities are the following: 41% of enterprises implement innovative business processes, 20.9% – new or improved methods of producing goods or providing services, 12, 9% – innovations in logistics, 15.2% – new practices of organization of procedures or external relations, 20.5% – new methods of organization of responsibility at workplaces, Decision-Making and Labor Resource Management, 22.8% – new or improved information processing and communication methods, 17, 6% - new methods of accounting and other administrative operations, 16.6% - new marketing methods of sales, packaging, pricing, product placement or customer service (Figure 2). Business process innovations are implemented the most at enterprises in the developed countries: Finland (47,5%), Sweden (48,2%), Norway (51,9%), Estonia (53,2%), Italy (53,9%), Greece (55,2%), Austria (55,2%), Germany (55,4%), Belgium (58,1%). Whereas in the countries that are developing, the number of enterprises introducing innovative business processes is much lower (Romania 8.0%, Poland 18.8%, Hungary 19.8%, Bulgaria 20.8%, Slovakia 22.6%) (see Fig. 2).

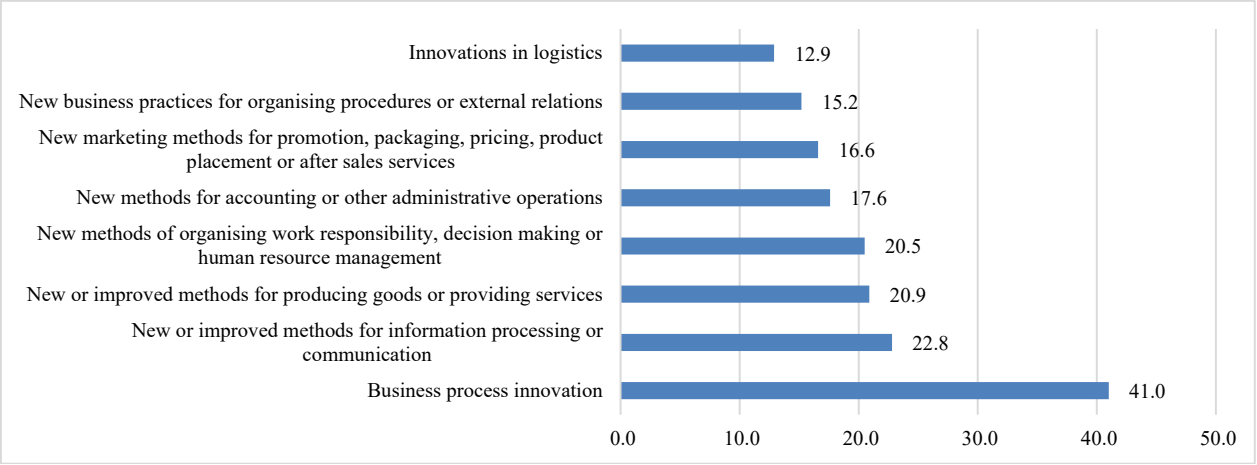


Fig. 2. Enterprises that introduced new or improved processes by type of innovation, EU-27 countries, 2018 in % of all enterprises
Source: Eurostat [20]

Overall, 217.4 thousand enterprises in the EU-27 implemented product innovations and 299.1 thousand enterprises implemented innovative business processes (see Table 1). 67% of companies independently developed innovative products and 65% developed business processes; 40% implemented innovations using the services of organizations; 15% of companies involved third-party organizations in development of new products, 14% involved other organizations in development of innovative business processes. The share of enterprises in some EU countries that independently implement innovative products or processes is significantly higher than average,

in particular in Turkey (93%), Cyprus (93%), Poland (82%), Italy (80%), Austria (78%), Portugal (78%), Greece (74%), Finland (73%), Estonia (72%). The rate in the more developed countries is significantly lower (Switzerland 60%, Denmark 59%, Luxembourg 54%, Norway 53%, Germany 51%, Sweden 50%) (see Table 1).

Table 1: Enterprises that introduced an innovation by type of innovation, developer, number and share in 2018 in EU-27

	Product innovation	Business process innovation	Product innovation	Business process innovation
Total	217 395	299 102	100%	100%
Enterprise itself	145 280	194 692	67%	65%
Enterprise together with other enterprises or organizations	86 377	121 620	40%	41%
Enterprise by adapting or modifying products and/or process originally developed by other enterprises or organizations	38 652	39 632	18%	13%
Other enterprises or organizations	33 110	42 548	15%	14%

Source: Eurostat [21]

Over the period 2016-2018, the turnover of enterprises with new or significantly improved products grew by 10.92% in total (see Fig. 3), with the highest rates in Romania (100%), Sweden (80%), Croatia (71%), Slovenia (58%), Portugal (47%), and Finland (45%). However, trade turnover in some countries has grown little or has decreased (Germany 5%, Cyprus 4%, Spain -3%, France -10%, Netherlands -11%, Lithuania -19%, Slovakia -37%). Thus, in spite of the high rate of implementation of innovations by the most developed EU countries, their turnover has grown significantly less compared to the innovatively active enterprises in the developing countries.

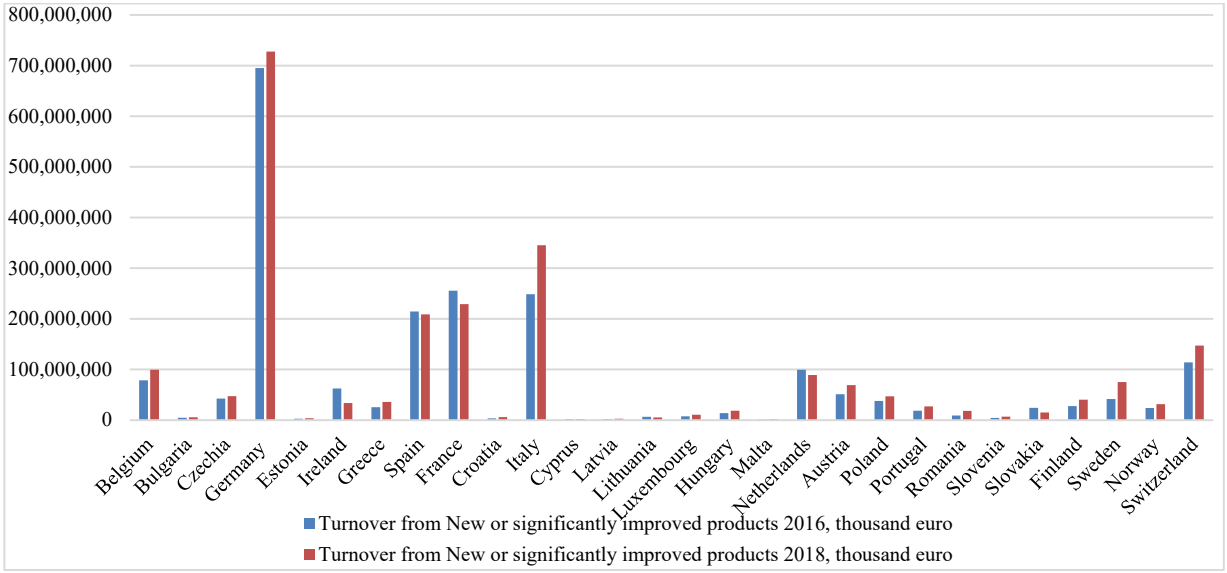


Figure 3. Turnover of enterprises from new or significantly improved products in EU-27, 2016, 2018
Source: Eurostat [22; 23]

The correlation analysis of the growth rate of turnover of enterprises that have implemented new or significantly improved existing products and the growth rate of the number of enterprises that have implemented innovations, indicates: 1) weak linear direct relationship between the indicator of turnover trade growth and the number of enterprises that have independently implemented innovations (correlation 0.147); 2) lack of a linear relationship between the turnover growth rate and the number of enterprises that together with other organizations have implemented innovation; 3) weak linear direct link between the trade turnover growth indicator and the number of enterprises that have implemented innovations with the organizations involvement (correlation 0,203); 4) weak linear direct link between the turnover growth indicator from a new product for the market and the number of enterprises that have independently implemented innovations (correlation 0,209); 5) weak linear direct link between the turnover growth indicator from a new product for the market and the number of enterprises that have

implemented innovations with the organizations involvement (correlation 0.273) (see Table 2).

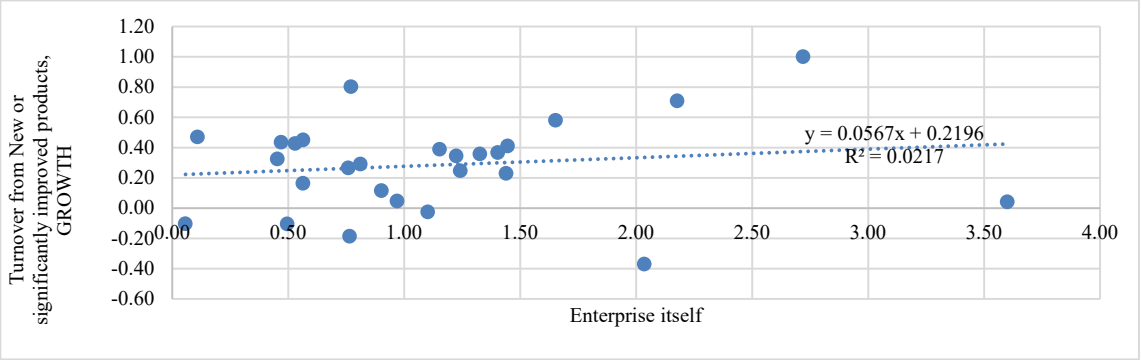
Table 2: Correlation between Turnover growth in 2018/2016 from new or significantly improved products and Enterprises growth 2018/2016 that introduced an innovation by type of developer

	Turnover from New or significantly improved products, thousand euro	*Turnover from New or significantly improved products that were new to the firm, thousand euro*	*Turnover from New or significantly improved products that were new to the market, thousand euro*	*Enterprise itself*	*Enterprise together with other enterprises or organizations*	*Outsourcing from other enterprises*
Turnover from New or significantly improved products, thousand euro	1,000					
Turnover from New or significantly improved products that were new to the firm, thousand euro	0,721	1,000				
Turnover from New or significantly improved products that were new to the market, thousand euro	0,521	-0,070	1,000			
Enterprise itself	0,147	0,053	0,209	1,000		
Enterprise together with other enterprises or organizations	-0,008	-0,018	0,012	0,819	1,000	
Outsourcing from other enterprises	0,203	0,204	0,273	0,756	0,506	1,000

Source: author calculation based on Eurostat [24]

Despite the excess of correlation between indicators of growth of turnover and outsourcing of services over correlation between growth of turnover and self-development of innovations, still there is practically no effect of a strong direct link between turnover and outsourcing.

The linear relationship between the growth rate of the number of innovative enterprises (products and services) and the growth rate of turnover of enterprises with new or improved products on their own (see Fig. 4) suggests that, Only 2.17% of the change in turnover is due to the change in the number of innovatively active enterprises. At a significance level of 5% we accept the hypothesis that with a change in the growth rate of the number of innovatively active enterprises by 1%, the growth rate of turnover from new or upgraded products will increase by 5.67%.



Source: author calculation based on Eurostat [21-24]

The linear relationship between the growth rate of the number of innovative enterprises (products and services) and the growth rate of turnover of enterprises with new or upgraded products based on outsourcing (Fig. 5) indicates that, only 4.12% of the change in turnover is explained by the change in the number of innovation-active enterprises that outsource innovations. At the same time, the diagram gives grounds to assert the nonlinearity of the impact of outsourcing on turnover. With a significance level of 5% it accepts the hypothesis that if the growth rate of the number of enterprises that implement innovation through outsourcing changes by 1%, the growth rate of turnover from new or upgraded products will increase by 7.15%

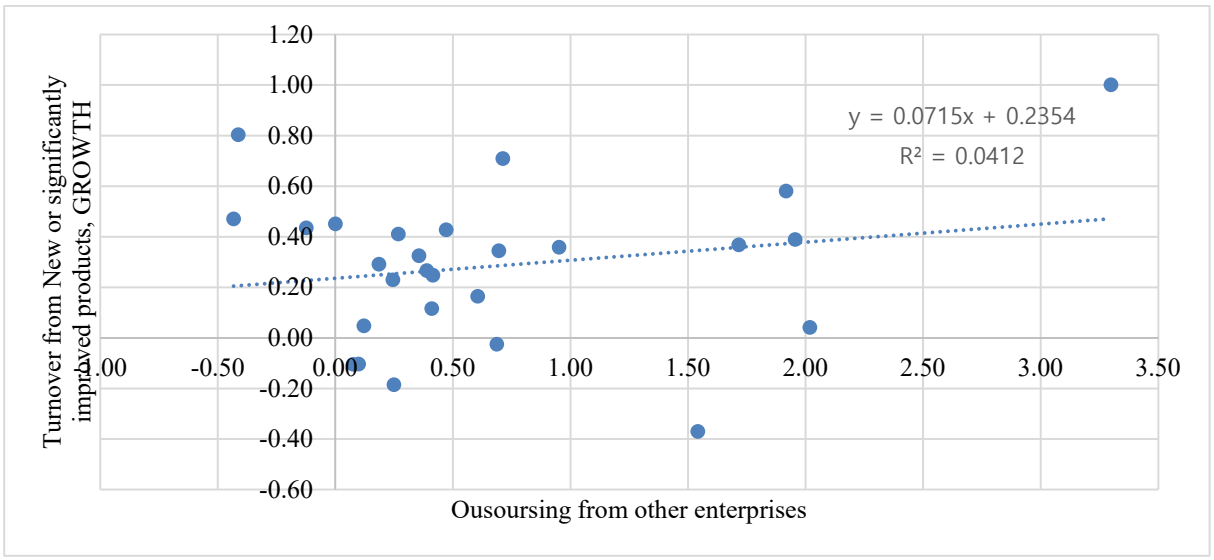


Fig. 5. Linear dependence between number growth of product and process innovative enterprises and turnover growth of enterprises with new or significantly improved products (innovation outsource from other enterprises)
Source: author calculation based on Eurostat [21-24]

Thus, outsourcing services of third-party organizations compared to independently developed or upgraded products by companies is more effective in terms of turnover growth.

5. Discussion

This study revealed a nonlinear link between outsourcing and innovation activity of enterprises. According to Fritsch & Görg, the nonlinearity of the link can be explained by the fact that outsourcing increases the probability of costs on R&D and, through this channel, increases the volume of innovation activity [25]. At the same time, the dependence between outsourcing and innovation activity is determined by the institutional environment of the country, in particular the rights of intellectual property and property rights. Martínez-Noya & García-Canal argue that the effectiveness of outsourcing depends on the protection of intellectual property rights in the country and the nature of the services outsourced [26]. In particular, in the area of innovation activities outsourcing of services for development of innovations can cause transfer of knowledge about innovation processes or services due to a weak institution of protection of intellectual property rights. Thus, the company that buys the services of a third-party organization for implementation of innovative products or services risks that the knowledge, formed in the process of implementation of services, can be transferred to competitors. As a result, the outsourcing effect is reduced through the competitors' access to knowledge. These features and risks of outsourcing for the development of innovative products or services may be the reason for the low number of enterprises that engage outside companies in innovative activities in the developing countries found in this research.

The reason for the low level of influence between innovation-active enterprises, which involve outside organizations in the process of developing new products or services, and the turnover of such enterprises may also be the lack of innovation, initiated by suppliers [27]. We also found a lack of correlation (correlation -0.008) between the growth rate of the number of innovative enterprises that collaborate with third-party organizations to develop innovations and the growth rate of their turnover. As explained by Wallenburg et al., a relatively low level of hierarchy of relations between the contractor and the outsourcer contributes to the stimulation of innovation in logistics [27]. While the prevalence of the buyer of outsourcing services and hierarchy of relations leads to a negative impact on innovation. This means that the way of interaction affects the effect of outsourcing on the development of innovative products and services. The lack

of effect at cooperation in case of outsourcing of services for development of innovations can also be explained by the methods of innovative activity: Specialized nature taking into account the activities of the client and its requests; implementation of new technologies taking into account the structured activities of the clients [28].

This study found that EU enterprises are more likely to use their own resources to develop innovations compared to outsourcing. Materia, Pascucci & Dries analyzed the choice of European agro-food companies to implement innovations independently or through outsourcing, explaining the choice by such factors: transaction costs, resource base and knowledge management [29]. Materia, Pascucci & Dries argue that the decision to implement innovations independently or through outsourcing is one or the other [29]. In addition, the influence of organizational characteristics on the two strategies was revealed: communication systems, human resource management practices and specialization. However, the division of responsibilities and the business structure of the organizations do not significantly influence the definition and choice of innovation strategies of the European agro-food sector. Burdon, Mooney & Al-Kilidar found that the effectiveness of cooperation between companies when developing innovations depends on the level of understanding and expectations of the innovator of innovative services or products, level of clarity and clarity of the type of innovation, level of synergy in partner relations [30].

6. Conclusion

This research revealed a high level of innovation activity of EU enterprises (50.3% are innovatively active). Innovative business processes are the most widespread form of innovation activity (41% of enterprises implement business processes, and the indicator is higher than 41% in the most developed EU countries). The turnover of enterprises with new or substantially improved products was found to grow by 10.92% for the period 2016-2018. The correlation analysis shows weak direct links between the indicator of turnover growth and the number of enterprises that have independently implemented innovations, or have implemented innovations jointly with third-party companies, or using outsourcing services. The highest level of direct connection was found between the growth of turnover of enterprises that released a new product for the market and the growth of the number of enterprises that implemented innovations with the involvement of organizations (correlation 0.273). Based on the regression analysis it was found that with a 1% change in the growth rate of the number of innovation-active enterprises, the growth rate of turnover from new or improved products increased by 5.67%. At the same time, with a 1% change in the growth rate of the number of enterprises that implement innovation through outsourcing, the growth rate of turnover from new or improved products will increase by 7.15%.

Further research should be focused on studying the practice of outsourcing based on structured or unstructured interviews with the heads of enterprises of different sectors to analyze the benefits, Disadvantages, differences in the use of outsourcing as a form of labor management, differentiation of the effects in various sectors of the company's operations.

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