

European Experience in Assessing the Potential of Innovative Consulting Services

¹OLENA LEVISHCHENKO, ¹OKSANA DZIUBA, ¹HALYNA LAVRYK,

²ANTONINA ZELISKA, ³RIABENKO VOLODYMYR

¹National Transport University, UKRAINE

²Polissya National University, UKRAINE

³National University of Food Technologies, UKRAINE

Abstract: Innovative consulting services in various sectors of the EU economy are popular due to the potential of companies to attract private and public financial resources. The purpose of this article was to study the implementation of innovative consulting services to assess their potential. The research methodology is based on a statistical analysis of the system of indicators of innovative consulting services and a correlation analysis of the impact on the activities of EU firms. The results show that the most common form of innovation consulting are self-development, product improvement, process, customer search, access to new customer segments, etc. Involvement of consulting organizations in the development of innovative products is carried out by 40% of companies, and the introduction of information and communication technologies and business process updates is the most popular type of consulting in the EU.

Keywords: consulting, consulting services, potential, innovative development, innovations, business models.

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1. Introduction

Innovative consulting services in various sectors of the EU economy are popular due to the potential of attracting financial resources from companies, both private and public. The most common types of consulting among European companies are decision-making on the implementation of information services, marketing activities, business processes, business strategy development, ensuring business sustainability in terms of spreading the concept of sustainable development. Within the EU, government programs aimed at opening innovative companies in the field of consulting are being actively implemented. Firms involve third-party organizations to improve business strategies, business processes, products, finding new customers, the introduction of information technology. This requires a study of the potential of innovative consulting services in the EU.

2. Literature review

Consulting services are seen as “knowledge-intensive business services” that are becoming increasingly relevant in the knowledge economy (Hertog, 2000; Cătoiu et al., 2016), as they ensure the growth of enterprise competitiveness. Consulting firms are innovation facilitators or co-producers of innovative products. Process-oriented and intangible knowledge flows between the client and the consulting service provider play a crucial role in the development of

innovative products. The scientific literature uses quantitative methodology to assess the potential of innovative consulting services, in particular based on surveys of enterprises (Darie, 2019) and consumers of consulting services (Zafeiropoulou & Nadan, 2015); regression analysis of causal relationships between the factors involved in consulting bureaus and the choice of consulting companies (Tamulienė et al., 2019), multifactor regression analysis (Arias-Aranda et al., 2001; Lee, 2021), cluster analysis of the results of a survey of the management of agricultural companies based on a structured interview (Andreopoulou, 2014), multidimensional statistical analysis of the relationship between management services/consulting services and indicators of economic efficiency of business, between firm size in engineering consulting and level of innovation (Martin & Matlay, 2003; Cătoiu et al., 2016), exploratory multiple case studies of over 30 innovative European and US companies and semi-structured interviews of managers from product management, research and development, information technology, and marketing (Baloh et al., 2008). The turnover indicator was used to measure the size of the firm (Martin & Matlay, 2003).

A review of the literature indicates the lack of a comprehensive assessment of the state, trends and features of the market of innovative consulting services, which will identify the potential for development of consulting.

3. Methodology

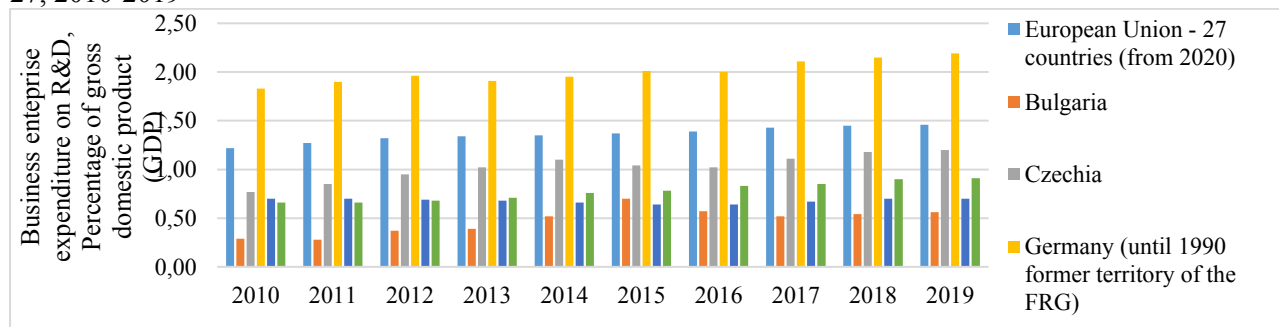
This article uses statistical and correlation analysis of indicators of the potential of innovative consulting services in the EU and in particular on the example of Bulgaria, the Czech Republic, Germany, Spain, and Italy for 2010-2019, given the availability of data for different time periods. These countries were selected for analysis due to different levels of economic development, including entrepreneurship and the functioning of consulting agencies. The following indicators were selected for analysis:

1. Business enterprise expenditure on R&D, Percentage of GDP in EU-27, 2010-2019.

4. Results

Innovative consulting services in the EU are used to ensure the stability of cash flows, especially in times of crisis. According to Eurostat (2021a), in 2018, 516 thousand EU-27 enterprises

presented innovations, including 217 thousand (42%) - product, 299 thousand (58%) - business process innovations. Enterprise spending on research and development averaged 1.36% of GDP in 2010-2019 within the EU-27 (see Fig. 1).



In the services sector, R&D expenditures of enterprises in the EU countries as a share of GDP for 2010-2018 were as follows: Bulgaria - 0.34%,

2. Business enterprise expenditure on R&D in services in EU countries, 2010-2018.

3. Structure of business enterprise expenditure on R&D in different sector of economy.

4. Enterprises that introduced a business process innovation by developer, 2018.

5. Enterprises that introduced new or improved processes by type of innovation, 2018.

6. Total enterprises turnover in EU-27 from innovation core activities, 2018.

7. Enterprises by type of business strategy applied, 2018.

8. Turnover of enterprises from new or significantly improved products in 2016-2018.

the Czech Republic - 0.42%, Germany - 0.27%, Spain - 0.32%, and Italy - 0.20% (see Table 1).

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Table 1. Business enterprise expenditure on R&D in services of the business economy in EU countries, % of GDP, all source of funding 2010-2018

Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average, %
Bulgaria	0.24	0.25	0.31	0.33	0.42	0.48	0.36	0.33	0.35	0.34
Czech Republic	0.31	0.34	0.39	0.39	0.44	0.46	0.45	0.49	0.51	0.42
Germany	0.24	0.26	0.26	0.25	0.24	0.28	0.29	0.3	0.3	0.27
Spain	0.34	0.32	0.33	0.33	0.31	0.31	0.3	0.32	0.34	0.32
Italy	0.17	0.16	0.16	0.18	0.19	0.2	0.22	0.23	0.26	0.20

The calculation of the R&D share expenditures by service enterprises in the total R&D expenditures of enterprises of all types of activity shows (see Table 2) that the service sector is the most popular sector in Bulgaria, financed from

various sources (government programs, private sector, NGOs), high in demand in the Czech Republic and Spain, to a lesser extent in Germany and Italy.

Table 2. Share of financing of R&D of enterprises in the service sector in the total financing of R&D of enterprises of all types of activity, 2010-2018, %

	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average, %
Bulgaria	84	88	84	85	81	68	63	62	65	76
Czech Republic	40	40	42	38	40	45	44	44	43	42
Germany	13	14	13	13	12	14	14	14	14	14
Spain	48	47	47	48	47	48	48	48	49	48
Italy	26	25	23	25	26	26	27	27	28	26

R&D financing of various sectors of the economy indicate that services and manufacturing attract the most financial resources to finance innovation (see Table 3). This means that

innovative consulting services are in high demand, especially in countries with low levels of production.

Table 3. Structure of business enterprise expenditure on R&D in different sectors of economy

	All sectors	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gas, steam and air conditioning supply; water supply; sewerage, waste management and remediation activities	Services of the business economy
Million euros						
Bulgaria	304,777	0.166	0.274	100,638	0.282	198,116
Czech Republic	2,481,912	7,637	1,617	1 354,952	16,432	1,075,239
Germany	72 101.3	171.6	23.8	61 574.4	156.8	10,088.7
Spain	8 445	94	18	3 830	150	4 139
Italy	15,934,029	8,007	74,963	10,716,963	113,689	4,531,631
Share, %						
Bulgaria	100.00%	0.05%	0.09%	33,02%	0.09%	65,00%
Czech Republic	100.00%	0.31%	0.07%	54,59%	0.66%	43,32%
Germany	100.00%	0.24%	0.03%	85,40%	0.22%	13,99%
Spain	100.00%	1.11%	0.21%	45,35%	1.78%	49,01%
Italy	100.00%	0.05%	0.47%	67,26%	0.71%	28,44%

The main producers of innovative business processes are either enterprises or enterprises together with consulting companies (Table 4). For example, in all EU-27 countries, 65% of companies have independently developed innovative business processes, 41% - in collaboration with consulting agencies, 13% - adapting or modifying a product/process developed by other organizations, 14% - business processes are fully developed consulting firms (Eurostat, 2021b). In Bulgaria and

the Czech Republic, the most common forms of developing innovative business processes are autonomous and co-production, in Germany co-production predominates, although autonomy is almost equal in volume. In Spain, the autonomous form of implementation of innovative business processes prevails (64%), in Italy, there is the largest share of independence of enterprises in the development of innovations (79%).

Table 4. Enterprises that introduced an Business process innovation by developer, 2018, number and share

	Developer of Business process innovation				
	Total	Enterprise itself	Enterprise together with other enterprises or organizations	Enterprise by adapting or modifying products and/or process originally developed by other enterprises or organizations	Other enterprises or organizations
European Union - 27, million euros	299 102	194 692	121 620	39 632	42 548
Share,%	100.00	65,09	40,66	13.25	14.23
Bulgaria, million euros	3 220	2 162	1 065	447	473
Share,%	100.00	67,14	33,07	13.88	14.69
Czech Republic, million euros	9 787	6 790	3 399	647	1150
Share,%	100.00	69,38	34,73	6.61	11.75
Germany, million euros	81 827	41 247	42 808	10 450	12 558
Share,%	100.00	50,41	52,32	12.77	15.35
Spain, million euros	16 828	10 778	2 997	2 084	2 480
Share,%	100.00	64,0	17.81	12.38	14.74
Italy, million euros	63 780	50 583	21 561	4 871	9 033
Share,%	100.00	79,31	33,81	7.64	14.16

The main types of innovative business processes of EU-27 enterprises are (Eurostat, 2021c): improved production methods, methods of information communication, organization of responsibility in the workplace, decision-making or human resource management, methods of

organizing procedures or external relations, accounting, administrative operations, marketing methods (promotion, packaging, pricing, product placement or after sales services), and innovations in logistics (see Table 5).

Table 5. Enterprises that introduced new or improved processes by type of innovation in 2018

GEO / INNOVAT	European Union-27	Bulgaria	Czech Republic	Germany	Spain	Italy
Business process innovation	299 102	3 220	9 787	81 827	16 828	63 780
New or improved methods for producing goods or providing services	152 294	1 799	4 817	35 270	8 004	35 839
Innovations in logistics	94 003	805	2 639	21 778	3 674	24 487
New business practices for organizing procedures or external relations	111 217	1 418	3 275	29 235	3 018	24 841
New methods of organizing work responsibility, decision making or human resource management	149 261	1 287	4 663	47 402	4 772	32 824
New or improved methods for information processing or communication	166 508	1 374	4 370	50 500	7 721	38 412
New methods for accounting or other administrative operations	128 192	936	3 613	37 701	5 453	27 268
New marketing methods for promotion, packaging, pricing, product placement or after sales services	121 104	1 338	5 376	34 143	5 565	26 551

In general, the turnover of EU-27 enterprises from the introduction of innovative products is growing. The share of turnover of enterprises exclusively with innovative products was 5% in Bulgaria, 3% in the Czech Republic, 6% in Germany; 6% in Spain and 2% in Italy (Eurostat, 2021d). The share of turnover of enterprises exclusively with innovative business processes was 23% in Bulgaria, 20% in the Czech Republic, 17% in Germany; 17% in Spain and 18% in Italy (Eurostat, 2021d). This shows that innovative business processes and consulting in this area are the most profitable for EU companies.

Among the types of strategies used by enterprises with innovative activity, in Bulgaria the focus is on improving existing products, finding new customer groups, focusing on high quality,

customer satisfaction. In the Czech Republic, companies are focused mainly on finding new customer groups, addressing specific customer needs, high quality, and customer satisfaction. In Germany, such strategies of innovation activity prevail as high product quality, solving specific customer needs, improving existing products, customer satisfaction, finding new customer groups, and expanding the product range. In Spain, the main strategies are to focus on quality and customer satisfaction, finding new customer groups and improving products, and addressing specific customer needs. In Italy, companies mostly use strategies to meet customer needs, high product quality, product improvement, low price, and expanding the range.

Table 6. Enterprises by type of business strategy applied, 2018, %

Strategy	Bulgaria	Czech Republic	Germany	Spain	Italy
Focus on improving existing goods or services	25.2	28.3	44.4	34.6	22.6
Focus on introducing entirely new goods or services	11.1	14.8	16.7	8.4	16.7
Focus on reaching out to new customer groups	32.2	30.3	30.4	35.7	9.1
Focus on customer specific solution	19.4	22.7	54.4	31.6	-
Focus on low-price	15.7	10.9	12.0	16.1	17.4
Focus on high quality	39.7	38.1	66.2	45.2	33.1
Focus on a broad range of goods and services	15.9	10.1	23.6	15.5	16.9
Focus on key goods and services	12.6	7.8	13.7	11.7	7.8
Focus on satisfying established customer groups	35.4	44.5	40.7	44.2	38.6
Focus on standardized goods or services	14.4	11.0	11.8	12.8	11.8

The volume of trade turnover of enterprises with new or significantly improved products, including for the market, for 2016-2018 increased in Bulgaria by 129%, in the Czech Republic - by 120%, in Germany - by 33%, in Spain - by 98%, in Italy - by 211% (Table 7). At the same time, the turnover of enterprises with constant products or minimal changes decreased: in Bulgaria by 82%, in the Czech Republic - by 79%, in Germany - by 93%,

in Spain - by 69%, in Italy - by 84%. On average, trade turnover increased by 70% in 2016-2018, but the growth can be explained by other factors. Correlation analysis of trade turnover (Table 7) and the number of innovations by type (Table 8) shows a close direct relationship between even insignificant innovative changes in products with the growth of trade turnover of enterprises.

Table 7. Matrix of correlation between the turnover of enterprises and the number of innovations introduced by enterprises by type, according to Bulgaria, the Czech Republic, Germany, Spain and Italy in 2018

	Ta	Tb	Tc	Bi	On	Il	Nb	Nc	Sun.	Nf	Ng
Turnover from New or significantly improved products that were new to the firm, Ta	1.00										
Turnover from New or significantly improved products that were new to the market, Tb	1.00	1.00									
Turnover from Unchanged or marginally modified products (of product innovators), Tc	0.95	0.91	1.00								
Business process innovation, Bi	0.94	0.92	0.94	1.00							
New or improved methods for producing goods or providing services, Na	0.87	0.83	0.91	0.98	1.00						
Innovations in logistics, Il	0.82	0.79	0.88	0.96	1.00	1.00					
New business practices for organizing procedures or external relations, Nb	0.90	0.88	0.90	0.99	0.99	0.98	1.00				
New methods of organizing work responsibility, decision making or human resource management, Nc	0.95	0.94	0.91	0.99	0.96	0.94	0.99	1.00			
New or improved methods for information processing or communication, Nd	0.94	0.92	0.93	1.00	0.98	0.96	0.99	1.00	1.00		
New methods for accounting or other administrative operations, Nf	0.95	0.93	0.93	1.00	0.97	0.95	0.99	1.00	1.00	1.00	
New marketing methods for promotion, packaging, pricing, product placement or after sales services, Ng	0.93	0.91	0.92	1.00	0.98	0.96	1.00	1.00	1.00	1.00	1.00

Table 8. Turnover of enterprises from new or significantly improved products in 2016, 2018

Country / Innovation	New or significantly improved products that were new to the firm		New or significantly improved products that were new to the market		Unchanged or marginally modified products (of product innovators)	
	2016	2018	2016	2018	2016	2018
Bulgaria	2 486 779	5,694,717	2 080 345	3 194 120	14 040 733	2,500,597
Czech Republic	21 540 909	47 424 856	20 975 236	23 810 276	112,492,571	23 614 580
Germany	546 241 268	727 510 605	148 743 503	556 240 802	2,632,498,998	171 269 803
Spain	105 455 873	208 894 142	108 945 981	120 020 263	288 653 109	88 873 879
Italy	110 979 444	345 289 219	137 736 779	216 084 855	827 200 278	129 204 364
Average	157 340 855	266 962 708	83 696 369	183 870 063	774 977 138	83 092 645
Standard deviation	222770270	290718591	67794090	224742902	1084842822	70653455

The analysis of innovative consulting services shows the following main trends in EU markets:

- 1) growth of the share of expenditures in GDP for research and development, financed by the enterprises themselves, in 2010-2019;
- 2) a high share of financing the innovative activities of service enterprises at the expense of the

public, private sectors, non-governmental organizations;

- 3) the predominance of the service sector and the production sector in the structure of funding for research and development;

- 4) 65% of EU enterprises develop innovative products and services independently,

40% - with the involvement of third-party organizations;

5) introduction of innovative information technologies in business processes in various subsystems (communication, accounting, management, human resources management, decision-making, etc.) is the most common type of innovative business processes;

6) among the strategies of innovative activity of enterprises prevail: focus on reaching out to new customer groups, focus on improving existing goods or services, focus on customer specific solution, focus on satisfying established customer groups, focus on high quality;

7) innovative business processes provide a significant positive impact on the turnover of enterprises.

5. Discussion

This article reveals that even minimal changes in innovation activities affect the firm's turnover, and the development of innovations with consulting agencies is significantly used to conduct innovation activities by firms. These results correlate with the findings of Evangelista, Lucchese & Meliciani (2013): business services have a positive impact on firms' innovation performance and industry value added growth.

In this research was found that 40.66% of companies develop innovative business processes with the involvement of consulting organizations. Consulting firms are innovation facilitators or co-producers of innovative products (Hertog, 2000). Baloh et al. (2008) have shown that partnerships provide companies with information flows and knowledge in the field of innovation. The access to an information and integration to it from different sources significantly improves the knowledge base and stimulates sustainable innovation. The main models of a strategic alliance to innovate are "acquisition, strategic alliances, and open source" (Baloh et al., 2008), which can be the basis of innovation projects or programs. Therefore, the potential of innovative consulting services includes the tools of strategic partnership, which are widespread in the EU. The use of consulting services, especially innovative ones, is characterized by complexity due to the attitude of owners towards consultants and different strategies for implementing services (Werr & Perner, 2007).

The results of this study show that 65% of firms carry out innovation, research and development on their own, without the involvement of outside firms. This means that the perception of

consultants as potentially effective actors in business transformation and the impact on profitability growth in the EU still remains low. Consulting services for the implementation of information technology (communication, accounting, and marketing) are most in demand, which may be due in particular to the lack of competence of the management of firms in their integration into activities. This may be because technology transforms business processes and services of firms (Ali et al., 2017), reducing operational risks and ensuring the implementation of innovative production processes (Andreopoulou et al., 2014). Process-oriented and intangible knowledge flows between the client and the consulting service provider play a crucial role in the development of innovative products (Hertog, 2000). Consulting companies also need a digital transformation of business (Nissen, 2018), and therefore consultants must constantly update the range of services, especially digital, given the high level of demand from companies for information technology and support in their implementation.

Instead, business leaders may have more knowledge about product innovation and consumer market demands for products, as evidenced by the active use of product update strategies, quality assurance, and customer focus. According to a study by Lee (2021), accounting consulting services are effective when staff are competent, use e-commerce, high market concentration, a high percentage of consultants and a sufficient number of management consultants.

6. Conclusion

In this article, the experience of implementing innovative consulting services and assessing their potential is carried out on the example of Bulgaria, the Czech Republic, Germany, Spain and Italy. German and Italian companies mostly use consulting services to transform business processes, while Spanish, Bulgarian and Czech companies are less likely to attract consultants. The most common form of using consulting to implement innovations are self-development, product improvement, process, customer search, access to new customer segments and more. 40% of companies are involved in the development of innovative products in the studied countries. The introduction of information and communication technologies and the renewal of business processes is the most popular type of consulting in the EU. Differentiation of innovative strategies of enterprises of these countries is

identified. The main trends in innovative consulting services are identified, which allows to assess the potential within the EU: further growth of the consulting market with an emphasis on the implementation of digital technologies that transform business processes; stimulating consulting activities through government programs and private financial resources to develop innovative products in various sectors of the EU economy; increasing the level of involvement of consulting agencies in the innovative activities of firms; more active use by firms of such strategies of innovative activity as satisfaction of clients, search of new segments of target groups of clients and satisfaction of requirements of clients that will lead to growth of level of attraction of consultants; growth of volumes of innovative business processes which provide introduction by firms of one of the most used strategies of innovative activity - updating of assortment, maintenance of high quality of a product and improvement of the existing assortment of products.

References

- [1]. Ali, A., Warren, D., & Mathiassen, L. (2017). Cloud-based business services innovation: A risk management model. *International Journal of Information Management*, 37(6), 639-649.
- [2]. Andreopoulou, Z., Tsekouropoulos, G., Theodoridis, A., Samathrakos, V., & Batzios, C. (2014). Consulting for sustainable development, information technologies adoption, marketing and entrepreneurship issues in livestock farms. *Procedia Economics and Finance*, 9, 302-309.
- [3]. Arias-Aranda, D., Minguela-Rata, B. and Rodríguez-Duarte, A. (2001). Innovation and firm size: an empirical study for Spanish engineering consulting companies, *European Journal of Innovation Management*, 4 (3), 133-142. <https://doi.org/10.1108/EUM0000000005671>
- [4]. Baloh, P., Jha, S., & Awazu, Y. (2008). Building strategic partnerships for managing innovation outsourcing. *Strategic Outsourcing: An International Journal*. 1 (2), 100-121. <https://doi.org/10.1108/17538290810897138>
- [5]. Cătoi, I., Tudor, L., & Bisa, C. (2016). Knowledge-intensive business services and business consulting services in romanian changing economic environment. *Amfiteatru Economic Journal*, 18(41), 40-54.
- [6]. Darie, M., Mocanu, O., Gasparotti, C., & Schin, G. C. (2019, September). Assessment of the performance of management consulting services—a correlational survey. In *Forum Scientiae Oeconomia* (Vol. 7, No. 3, pp. 31_47-31_47).
- [7]. Eurostat (2021a). BERD by NACE Rev. 2 activity and source of funds. https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=rd_e_berdfundr2&lang=en
- [8]. Eurostat (2021b). Enterprises that introduced an innovation by type of innovation, developer, NACE Rev.2 activity and size class. <https://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>
- [9]. Eurostat (2021c). Enterprises that introduced new or improved processes by type of innovation, NACE Rev. 2 activity and size class. <https://appsso.eurostat.ec.europa.eu/nui/setupDownloads.do>
- [10]. Eurostat (2021d). Enterprises, employed persons and turnover by type of enterprise, NACE Rev. 2 activity and size class. <https://appsso.eurostat.ec.europa.eu/nui/setupDownloads.do>
- [11]. Eurostat (2021e). Enterprises by type of business strategy applied, importance of the strategy, NACE Rev. 2 activity and size class. https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=inn_cis11_strat&lang=en
- [12]. Eurostat (2021f). Turnover of enterprises from new or significantly improved products, by NACE Rev. 2 activity and size class in 2018. <https://appsso.eurostat.ec.europa.eu/nui/setupDownloads.do>
- [13]. Eurostat (2021g). Turnover of product innovative enterprises from new or significantly improved products, by NACE Rev. 2 activity and size class in 2016. <https://appsso.eurostat.ec.europa.eu/nui/setupDownloads.do>
- [14]. Evangelista, R., Lucchese, M., & Melicani, V. (2013). Business services, innovation and sectoral growth. *Structural change and economic dynamics*, 25, 119-132.
- [15]. Hertog, P. D. (2000). Knowledge-intensive business services as co-producers of innovation. *International journal of innovation management*, 4(04), 491-528.
- [16]. Lee, C. C. (2021). Analysis on the strategy of improving management consulting business performance: Evidence on a management consulting company established by an accounting firm. *Asia Pacific Management Review*.
- [17]. Martin, L. M., & Matlay, H. (2003). Innovative use of the Internet in established small firms: the impact of knowledge management and organisational learning in accessing new

opportunities. *Qualitative Market Research: An International Journal*. 4 (3), 133-142. <https://doi.org/10.1108/EUM0000000005671>

[18].Nissen, V. (2018). Digital transformation of the consulting industry—introduction and overview. In *Digital Transformation of the Consulting Industry* (pp. 1-58). Springer, Cham.

[19].Tamulienė, V., Raupelienė, A., & Kazlauskienė, E. (2019). Farmers' Preferences Selecting Agricultural Consulting Services. <https://repository.mruni.eu/handle/007/15563>

[20].Werr, A., & Perner, F. (2007). Purchasing management consulting services—From management autonomy to purchasing involvement. *Journal of Purchasing and Supply Management*, 13(2), 98-112.

[21].Zafeiropoulou, S., & Nadan, J. (2015, August). Increasing the value of innovation consulting services in the technology age. In *2015 Portland International Conference on Management of Engineering and Technology (PICMET)* (pp. 704-717). IEEE.

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