

# Business consulting, knowledge absorptive capacity, and innovativeness: A triangular model for micro and small enterprises in Poland

Wojciech Grabowski<sup>1</sup> , Edward Stawasz<sup>2</sup> 

## Abstract

**PURPOSE:** This paper proposes a triangular relationship between business consulting, knowledge absorptive capacity, and innovativeness. The role of knowledge absorptive capacity in stimulating the impact of business consulting on innovativeness is studied. **METHODOLOGY:** An empirical study is conducted using the CATI method, and it is based on data concerning 382 Polish micro and small enterprises. Qualitative variables reflecting using business consulting, knowledge absorptive capacity and innovativeness are defined. The multivariate discrete choice model taking into account relationships among these constructs, is proposed and its parameters are estimated. **FINDINGS:** The results of the empirical research indicate that business consulting in Poland and similar countries may help firms implement innovative solutions. Knowledge absorptive capacity stimulates innovativeness and has a positive impact on the relationship between using business consulting and improvement in innovativeness. Though the frequency of using business consulting is an important factor in improving innovativeness, cooperation between a consultant and a manager matters more. **IMPLICATIONS:** Results of the empirical research indicate that cooperation between a consultant and a manager may help reduce differences of opinion and internal conflicts. A higher propensity to cooperate may significantly improve the functioning of an enterprise. Business consulting has an indirect and direct effect on innovativeness. It has a positive impact on knowledge absorptive capacity, while better knowledge stimulates innovativeness. **ORIGINALITY AND VALUE:** An original triangular model of the relationship between business consulting, knowledge absorptive capacity, and innovativeness is proposed.

1 Wojciech Grabowski, Ph.D. Habilitated, Associate Professor, Department of Econometric Models and Forecasts, Faculty of Economics and Sociology, University of Lodz, 37/39 Rewolucji 1905, 90-214 Lodz, Poland, e-mail: Wojciech.Grabowski@uni.lodz.pl (ORCID ID: <https://orcid.org/0000-0002-6707-3736>), corresponding author.

2 Edward Stawasz, Ph.D. Habilitated, Associate Professor, Department of Entrepreneurship and Industrial Policy, Faculty of Management, University of Lodz, 22/26 Matejki, 90-237 Lodz, Poland, e-mail: Edward.Stawasz@uni.lodz.pl (ORCID ID: <https://orcid.org/0000-0003-4744-6096>).

Received 4 May 2022; Revised 24 July 2022; Accepted 4 October 2022.

This is an open access paper under the CC BY license (<https://creativecommons.org/licenses/by/4.0/legalcode>).

*Advanced econometric methods are used in order to find complex relationships between using business consulting, knowledge absorptive capacity, and improvement in innovativeness. Moreover, results of the estimation of the parameters of the econometric model provide interesting recommendations for policies supporting the development of business consulting in the Polish economy.*

**Keywords:** *business consulting, knowledge absorptive capacity, innovativeness, multivariate discrete choice model, development support policy, econometric model, economy*

---

## INTRODUCTION

---

Business consulting is often mentioned as the main source of improving the innovativeness of micro and small enterprises (MSEs) in catching-up and post-transition economies.<sup>3</sup> MSEs have limited financial resources regarding managerial knowledge, weak management capabilities, and they spend less money on research and development activities. For MSEs in catching-up and post-transition economies, the role of business consulting is still not well described in the literature (Bojica, Ruiz-Jimenez, Ruiz-Nava, & Fuentes-Fuentes, 2018). The range and frequency of using business consulting vary due to factors associated with the sector, location, enterprise size, its development orientation, as well as support policy (Mole, Baldock, & North, 2013; Blackburn, Hart, & Wainwright, 2013). The results of empirical studies are ambiguous. Some studies found that business consulting positively impacts management quality, enterprise performance, and innovativeness (Delanoe, 2013). On the other hand, some authors indicate that business consulting frequently fails to enhance performance because it is difficult to manage contracts (Love & Roper, 2005; Hoecht & Trott, 2006).

According to the knowledge spillover theory, new knowledge acquired from business advisors is an important source of entrepreneurial opportunities (Qian & Acs, 2013). However, the benefits of using new knowledge depend on the knowledge absorptive capacity of enterprises. Knowledge absorptive capacity is defined by Cohen and Levinthal (1990) as “an ability to recognize the value of new information, assimilate it and apply to commercial ends.” Zahra and George (2002) identify four dimensions of absorptive capacity: acquisition, assimilation, transformation, and exploitation of external knowledge. Absorptive capacity allows entrepreneurs to understand and recognize the value of new knowledge and commercialize it.

---

<sup>3</sup> Empirical research is conducted on the basis of data for Polish micro and small enterprises. However, an analysis of the relationships between the use of business consulting, knowledge absorptive capacity, and innovativeness in Poland requires an understanding of the functioning of these aspects in similar countries. Poland may be treated as a catching-up and post-transition economy. Hence, studies focused on these aspects in such economies are mentioned in order to introduce the problem.

---

Business consulting may play an important role in developing the absorptive capacity of MSEs. At the same time, however, consulting alone cannot replace the decisive role of the absorptive capacity of an organization. The intellectual capital and its components, such as human capital, structural capital and relational capital, are the key sources of absorptive capacity (Kmieciak & Michna, 2018; Stawasz, 2021). Consulting activities may improve the absorptive capacity of MSEs but cannot replace the capitals mentioned above.

Innovativeness may undoubtedly help MSEs survive and achieve market success (Hue, 2019). However, firms in catching-up and post-transition markets are often reluctant to invest in innovation due to institutional voids endemic to such markets (Back, Parbotteeah, & Nam, 2014). Therefore, management consultancy firms in such markets can fill institutional voids and thus help implement innovation initiatives. Moreover, innovations and development of competitive advantage very often require new management and technological knowledge. The absorptive capacity of enterprises is very important to gain knowledge and utilize it efficiently for innovations (Schweisfurth & Raasch, 2018; Henderman & Catner, 2018; Audretsch, Siegel, & Terjesen, 2020). Empirical studies show that firms' investments in knowledge and absorptive capacity significantly improve their innovativeness (Audretsch & Link, 2019).

A low level of innovativeness in catching-up and post-transition countries motivates companies to identify sources of obstacles and think about how to overcome them. Though the role of business consulting and absorptive capacity in improving innovativeness has been broadly studied in the economic literature, studies on this topic are scarce regarding MSEs in Poland and similar countries.<sup>4</sup> To the best of the authors' knowledge, an approach that considers the indirect and moderating impact of absorptive capacity, as well as the impact of using advisory services on innovativeness, has not been studied before. The results of our empirical research may provide recommendations for the policy of supporting consultancy firms and providing grants to business consulting services. The empirical results may also provide recommendations in the area of increasing knowledge absorptive capacity in Poland. The obtained results may also provide recommendations for consultancy agencies in the area of providing support for firms.

This paper explains the impact of using business consulting and absorptive capacity on the innovativeness of MSEs in Poland as a representative post-transition Central and Eastern Europe (CEE) economy. We propose a triangular model that captures the impact of using business consulting

---

<sup>4</sup> Empirical studies devoted to the analysis of determinants of the innovativeness of Polish family firms were conducted by Surdej (2014, 2016).

and absorptive capacity on innovativeness, and estimate parameters of a multivariate ordered choice model. The empirical study was conducted in 2019 using the CATI method, and it was based on data concerning 382 Polish MSEs and covering period 2017-2019. The paper is structured as follows. In the second section, a literature review is provided. In the third section, data are presented, and descriptive statistics are provided. The fourth section presents the results of estimating the parameters of the econometric model and provides a discussion. The fifth section concludes.

## LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

---

Innovation remains the primary source of competitive advantage and business success (Hult, Hurley, & Knight, 2004) and is a cornerstone of sustainable growth (Doz, Santos, & Williamson, 2001). However, innovation is often associated with obstacles, and in such economies as Poland, micro and small enterprises rarely innovate (Arendt & Grabowski, 2019). Innovation usually involves research into unknown areas and requires extensive time and effort, while the outcome is typically uncertain and may take a long time to materialize (Back et al., 2014). As Fu, Pietrobelli, and Soete (2011) argue, innovation is costly, risky, and path-dependent. Therefore, innovation-related activities are highly risky even in the most developed economies of the world (e.g., the USA). According to Atkinson and Lind (2018), large firms are the primary engines of innovation and employment growth, as well as an important source of prosperity. In the USA, MSEs are outperformed by larger firms in all important indicators (i.e., productivity, innovativeness, salaries, corporate social responsibility, environmental protection, tax payment discipline). A similar situation concerns catching-up and post-transition markets, where investment in innovation is highly dangerous. Firms located in those economies inevitably hesitate to invest in innovation because these markets have highly embedded uncertainty (Powell & Grodal, 2005). As a result, innovation investments do not necessarily guarantee better performance, and firms in catching-up and post-transition markets are often reluctant to invest in innovation because of the institutional voids that are endemic to such markets (Bianchi, 2014).

A low level of innovativeness in catching-up and post-transition countries motivates companies to identify sources of obstacles and think about how to overcome them. Back et al. (2014) argue that management consultancy firms can fill institutional voids and help firms implement innovation initiatives. While in most developed markets firms take well-functioning public institutions as a given, these institutions function poorly

in catching-up, post-transition economies (Bianchi & Croce, 2016). Since institutional theory indicates that businesses tend to outperform if they receive institutional support (Xin & Pearce, 1996), it is argued that business consulting firms may assist institutions in catching-up and post-transition countries and help enterprises invest in research and development as well as introduce product and process innovations. However, business consulting cannot fill the institutional void or vacuum, alone. Business consulting cannot replace the multi-actors of the entrepreneurial ecosystem. But, in particular in the case of catching-up and post-transition economies characterized by poor functioning of public institutions, good cooperation between business consulting firms and other actors of the entrepreneurial eco-system may provide significant gains (Hall & Soskice, 2001).

A significant amount of the literature points to the interactive character of the innovation process (see Back et al., 2014). It is suggested that innovativeness is fostered by interactions with external sources of knowledge (Powell & Grodal 2005; Ren, Eisingerich, & Tsai, 2015), and relationships with others can be a valuable innovation tool. Knowledge links provide firms with easier access to new ideas (Lasagni, 2012). Therefore, microenterprises, as well as small- and medium-sized firms, are more likely to depend on external knowledge than larger ones (Zhou & Li, 2010). The literature on inter-firm relationships suggests that enterprises can obtain new knowledge and insights from external sources, significantly improving innovation performance (Johnsen, Phillips, Caldwell, & Lewis, 2006; Ren, Eisingerich, & Tsai, 2015). When enterprises search for information through inter-firm relationships, they are able to gain access to business knowledge and ideas that they are unlikely to find on their own (Coviello, 2006). Therefore, it is argued that management consulting enterprises can help firms in catching-up and post-transition economies by providing the resources they lack (Hitt, Bierman, Shimizu, & Kochhar, 2001; Lin, Yang, & Arya, 2009).

The next argument for the role of business consultants in improving the innovativeness of enterprises from catching-up and post-transition economies is associated with their domestic environment and their ambition to enter foreign markets. Firms that operate in less developed markets may be protected by several barriers, license fees, high tariffs, and even state ownership (Perez-Batres & Eden, 2008). With these barriers gone, they may not have the capability to compete in foreign markets or exploit innovative ideas. Therefore, consultants can act as market and information intermediaries by providing access to expertise and knowledge and legitimizing force. Business consultants can compensate for institutional voids in such economies by offering appropriate sources of innovation and providing firms with access to advantages to ensure value creation (Makadok, 2011; Huang, Gao, Fan, &

Hassan, 2022). Therefore, these enterprises may use external consultants to access critical information, increasing their innovation potential.

The next important role that consultancy agencies play is that of a legitimizer that supports and justifies its customer's decisions. Professional business consultants can make their clients' firms accelerate risky decisions and foster technical change by providing legitimacy for innovation based on high-quality analytical skills and experience (Back et al., 2014). In this context, business consulting providers can be treated as symbols of contemporary social change (Sturdy, 2011). Management consultants may also offer cutting-edge knowledge, as well as advice on innovation, and lend legitimacy to innovation decisions. Since access to knowledge networks is considered one of the key antecedents of firm innovation (Hoegl, Parboteeah, & Munson, 2003), management consultancy provides enterprises in catching-up and post-transition markets with guidance in facilitation innovation.

In addition, management consultancy offers several mechanisms to enhance innovation. For example, Sandberg and Werr (2003) indicate that customer-oriented consulting services often provide a firm with strong customer intelligence that may be combined with technological expertise to foster the development of new products and increase innovativeness. Consulting services can also reveal the gaps between customer expectations and supply. When this gap is addressed, innovation may be created. The next impact of consultancy services on innovativeness is based on generating in-depth knowledge of a firm's industry. As Czerniawska (2004) argues, specialist sectoral know-how belongs to the most sought-after qualities. It is undeniable that the in-depth expertise provided by business consultants can allow enterprises to encounter insights and connections helping innovation.

Though, in general, the effects of business consulting are positive, some scholars argue that management outsourcing that is present in consultancy may also have negative effects (Walker & Webb, 1984; Love & Roper, 2005; Hoecht & Trott, 2006). Business consulting frequently fails to enhance performance because it is difficult to manage contracts. When using business consulting, decision-making speed may be slow, and quality control may be more difficult than when there is no consulting (Stanko & Calantone, 2011). As Hoecht and Trott (2006) argue, innovation outsourcing has the problem of information leakage. Too much dependence on outsourcing may erode the internal capabilities firms need to recognize and exploit new opportunities on their own.

Disadvantages of consulting also occur because of its outsourced nature. Consulting firms are accused of telling companies what they want to hear, and criticism of business consultants often concerns providing "predefined solutions to unique problems, as well as being rigid in a rapidly moving

environment” (Czerniawska, 2004). Wright and Kitay (2002) argue that companies can sometimes use consulting to justify made decisions. According to Gibson (1998), consulting applied to an international environment is fraught with difficulties. The consultants may not know the cultures in which they are operating, and they may proceed according to the inherently ethnocentric assumption that the techniques or interventions that work in their home country shall work in other cultures.

The absorptive capacity theory of knowledge spillover entrepreneurship suggests that new knowledge does not necessarily lead to improved entrepreneurship (Michelacci, 2002), as absorptive capacity varies among entrepreneurs. On the one hand, it involves the scientific knowledge that the individual should have to understand what a new invention is and to recognize its market value. On the other hand, absorptive capacity relies on the market or business knowledge with which the individual can successfully operate a firm. According to the knowledge spillover theory, the inventor who develops a new technology has scientific knowledge, so his/her success in commercializing the new technology depends on the market knowledge he/she has to start up and operate a business. With strong absorptive capacity, an entrepreneur should have sufficient market and scientific knowledge to understand a new invention developed by others, recognize its market value, and commercialize it (Qian & Acs, 2013). It means that absorptive capacity helps understand knowledge provided by business consultants and utilize this knowledge in introducing innovations.

Based on the previous discussion, we propose a triangular model that takes into account the relationships between the use of business consulting, absorptive capacity, and innovativeness. Figure 1 presents the conceptual model that assumes that business consulting has a positive impact on absorptive capacity and increases innovativeness. Absorptive capacity has both direct and indirect positive impacts on innovativeness: in particular, it has a positive impact on the relationship between using business consulting and innovativeness.

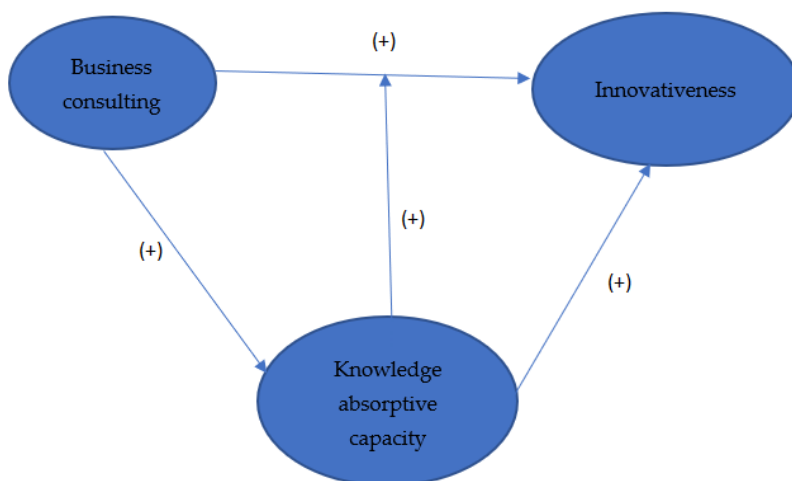
Based on the triangular model presented in Figure 1, we formulate the following hypotheses:

*H1: The use of business consulting increases an enterprise’s knowledge absorptive capacity.*

*H2: The more business consulting is used, the greater the improvement in innovativeness.*

*H3: The improvement in innovativeness grows with better knowledge absorptive capacity.*

*H4: Knowledge absorptive capacity positively affects the relationship between the use of business consulting and innovativeness.*



**Figure 1.** The triangular model of the relationship between the use of business consulting, knowledge absorptive capacity, and innovativeness

---

## METHODOLOGICAL APPROACH

### Data

An empirical study was conducted in 2019 using the CATI method<sup>5</sup>, based on data concerning 382 Polish MSEs, and covers the period 2017-2019. Survey respondents are owners, co-owners or managers of enterprises. The stratified random sampling is used in order to select the representative sample of MSEs that used business consulting at least once<sup>6</sup>, with regard to the following characteristics: size, age, and branch. Distribution of variables reflecting features of enterprises is provided in the Appendix.

Questions reflecting the use of business consulting and knowledge absorptive capacity concern the period 2017-2019. In the case of the question reflecting the improvement of innovativeness, answers concern change between 2017 and 2019. Questions reflecting the use of business

---

5 This integrated data collection process, which neutralizes the need to distribute paper questionnaires, is characterized by a relatively short time of gathering large samples. This method enables asking multilevel questions, controlling the answers given, and the course of interviews. The problems of using the CATI method are associated with treating research as telemarketing by potential respondents.

6 There are micro and small enterprises that never use business consulting. In the empirical research, we are not interested in such enterprises. The sample is intentionally truncated, and the use of the Heckman correction (Heckman, 1979) is necessary. Therefore, at the beginning, parameters of the binary choice model are estimated and Inverse Mills Ratio is calculated. This ratio is used in the estimation process in order to identify relations between using business consulting, knowledge absorptive capacity, and improvement of innovativeness.



consulting concern compliance with benefits of using business consulting with the expectations, cooperation between a manager and consulting agency, and frequency of using business consulting. In the case of the first question, a three-point Likert scale of answers is provided (low compliance, medium compliance, high compliance). In the case of the second question, a three-point Likert scale of answers is provided too: full cooperation, partial cooperation, lack of cooperation. In the case of the question informing about the frequency of using business consulting, a four-point Likert scale of answers is provided to respondents: very often, often, a few times, once. In the case of the question reflecting absorptive capacity within enterprises, a five-point Likert scale of answers is provided to respondents. Respondents answer whether the level of knowledge absorptive capacity within the enterprise is very low, low, medium, high, or very high. In the case of the improvement in innovativeness, a five-point Likert scale of answers is provided to respondents. Respondents answer whether the improvement in innovativeness resulting from business consulting is very weak, weak, medium, strong, or very strong.

However, we join answers to the questions and create binary variables reflecting using business consulting, as well as three-level ordered variables reflecting absorptive capacity and increase of innovativeness. This is due to the distribution of answers and significantly larger efficiency of the maximum likelihood estimator for the multivariate ordered choice model (Cameron & Tivedi, 2005) in the case of a lower number of variants.

Table 1 provides the definitions of the main categories describing the use of business consulting. The definitions and values of variables describing knowledge absorptive capacity and improvement in innovativeness are provided in Table 2.

**Table 1.** Definitions of variables describing the use of business consulting considered in the empirical research

Variable	Question in questionnaire	Values of variable
<i>Consulting_compliance</i>	Do the benefits of using business consulting comply with the expectations?	1 – high compliance, 0 – low or medium compliance
<i>Consulting_cooperation</i>	Do the manager and consulting agency cooperate <sup>7</sup> when business consulting is provided?	1 – full cooperation, 0 – partial cooperation or lack of cooperation
<i>Consulting_frequency</i>	How frequently is business consulting used?	1 – often or very often, 0 – once or a few times

<sup>7</sup> Cooperation means that decisions and recommendations are being made, while the manager and a consultant are discussing problems of functioning of an enterprise. It means that the manager actively participates in the process of providing recommendations by a consulting agency.

**Table 2.** Definitions of variables describing absorptive capacity and informing about an increase in innovativeness

Variable	Description	Values of variable
<i>Absorptive_capacity</i>	The level of knowledge absorptive capacity within the enterprise	-1 – a low level 0 – a medium level 1 – a high level
<i>ΔInnovativeness</i>	Improvement in innovativeness resulting from business consulting	-1 – weak improvement, 0 – medium improvement 1 – strong improvement

Features of the managers and the enterprises affect the use of business consulting, knowledge absorptive capacity, and innovativeness. Table 3 presents the descriptions of the explanatory variables in the empirical research.

**Table 3.** Descriptions of explanatory variables in the empirical research

Variable	Description	Values of variable
<i>Size</i>	Enterprise size	Number of workers within an enterprise
<i>Experience_manager</i>	Manager's experience	Number of years of experience
<i>Age_enterprise</i>	Enterprise age	1 for enterprises older than 3 years, and 0 otherwise
<i>Regional_dominating</i>	Information, whether the regional market is dominant	1 for enterprises where the regional market is dominant, and 0 otherwise
<i>National_dominating</i>	Information, whether the national market is dominant	1 for enterprises where the national market is dominant, and 0 otherwise
<i>International_dominating</i>	Information, whether the international market is dominant	1 for enterprises where the international market is dominant, and 0 otherwise
<i>More_managing</i>	Information, whether the number of managers is greater than 1	1 for enterprises with at least two managers, and 0 otherwise

Variable	Description	Values of variable
<i>Family_owner_manager</i>	Information, whether the owner and the manager of an enterprise are family-related	1 for the owner and manager being related, and 0 otherwise
<i>Education_economic</i>	The type of education of the manager	1 for managers with an economic education
<i>Education_technical</i>		1 for managers with a technical education
<i>Education_humanities</i>		1 for managers with an education in humanities
<i>Education_law</i>		1 for managers with a legal education

We also include industry sector dummies. The sectors and the appropriate variables are listed in Table 4.

**Table 4.** Industry sector dummies

Sector	Variable
Production (mainly production of films, food, clothes)	<i>Branch_Production</i>
Retail	<i>Branch_Retail</i>
Basic services	<i>Branch_Services</i>
Knowledge Intensive Business Services	<i>Branch_KIBS</i>

Table 5 presents information concerning the distribution of variables describing the use of business consulting.

**Table 5.** Distribution of business consulting variables

<i>Consulting_compliance</i>	
Value	Percentage
0	0.41
1	0.59
<i>Consulting_cooperation</i>	
Value	Percentage
0	0.41
1	0.59
<i>Consulting_frequency</i>	
Value	Percentage
0	0.76
1	0.24

The results from Table 5 indicate that only about 1/4 of enterprises use business consulting often or very often. More than 3/4 of enterprises use the services of a consulting agency infrequently. For 59% of enterprises, cooperation between a consultant and the manager is identified, and the level of compliance between expectations and the results of consulting is also high.

Table 6 presents the distribution of the dependent variables describing knowledge absorptive capacity and improvement in innovativeness.

**Table 6.** Distribution of variables reflecting knowledge absorptive capacity and improvement in innovativeness

<i>Absorptive_capacity</i>		
Value		Percentage
-1		0.35
0		0.46
1		0.19
<i>ΔInnovativeness</i>		
Value		Percentage
-1		0.45
0		0.29
1		0.26

The results from Table 6 indicate that the impact of business consulting on innovativeness is not strong. Almost half of the entrepreneurs do not observe any significant effects of business consulting on innovativeness. This could be explained by the relatively low level of knowledge absorptive capacity. In more than 1/3 of enterprises, knowledge absorptive capacity is low.

Table 7 presents the descriptive statistics for the continuous explanatory variables, while Table 8 gives the percentages of “ones” for the binary variables.

**Table 7.** Descriptive statistics for continuous explanatory variables

<i>Size</i>		
Mean		7.69
Standard deviation		11.03
Minimum		1
Maximum		49
<i>Experience_manager</i>		
Mean		12.64
Standard deviation		7.21
Minimum		1
Maximum		50

**Table 8.** Percentages of “ones” for the binary explanatory variables

Variable	Percentage of “ones”	Variable	Percentage of “ones”
<i>Age_enterprise</i>	0.84	<i>Branch_Retail</i>	0.16
<i>Regional_dominating</i>	0.45	<i>Branch_Services</i>	0.52
<i>National_dominating</i>	0.45	<i>Branch_KIBS</i>	0.22
<i>International_dominating</i>	0.17	<i>Education_economic</i>	0.31
<i>More_managing</i>	0.40	<i>Education_technical</i>	0.50
<i>Family_owner_manager</i>	0.20	<i>Education_humanities</i>	0.10
<i>Branch_Production</i>	0.10	<i>Education_law</i>	0.09

The results from Table 7 and Table 8 indicate that:

- the average size of an enterprise is very small (about eight workers);
- about 84% of enterprises in the sample are at least four years old;
- internationally active enterprises constitute 17% of the sample;
- the domestic market is dominant for 45% of enterprises;
- about 40% of enterprises have at least two managers;
- in about 1/5 of companies, family relationships between manager and owner are identified;
- 10% of enterprises are active in production, 16% are in retail, more than 50% offer basic services, and 22% provide knowledge intensive business services.

## Methodology

As already indicated in the previous sections, we consider the relationships between the use of business consulting, knowledge absorptive capacity, and improvement of innovativeness. Moreover, binary variables describe compliance with effects of consulting with expectations, propensity to cooperate between manager and consultant, as well as the frequency of using business consulting. Ordered discrete variables describe knowledge absorptive capacity, as well as improvement of innovativeness. In order to analyze the relationships between using business consulting, knowledge absorptive capacity and improvement of innovativeness presented in Figure 1, parameters of a multivariate ordered choice model are estimated. The choice of the method is due to the character of variables, as well as more

than one linkage among analyzed constructs (the use of business consulting, knowledge absorptive capacity, improvement of innovativeness).

The multivariate ordered choice model consists of a few models explaining the use of business consulting, knowledge absorptive capacity, and improvement of innovativeness. At the beginning of the estimation process, the parameters of the econometric models that explain the use of business consulting are estimated. Quality of using business consulting is described by three main elements:

- compliance of the benefits of business consulting with expectations;
- cooperation between the manager and the consulting agency;
- frequency of using business consulting.

Three binary choice variables are defined. Their definitions are presented in Table 1. Type of variables (binary variables) indicates that a binary choice model is estimated three times. The choice of an appropriate binary choice model depends on the distribution of the error term. We start with the assumption that the error term follows normal distribution and later verify the validity of this assumption. Therefore, in order to identify the determinants of how much the benefits of business consulting are as expected, the following probit model is considered:

$$\text{Consulting\_compliance}_i^* = \mathbf{x}_i\boldsymbol{\beta}^{\text{Consulting\_compliance}} + \varepsilon_i^{\text{Consulting\_compliance}} \quad (1.a)$$

$$\text{Consulting\_compliance}_i = I\{\text{Consulting\_compliance}_i^* > 0\}, \quad (1.b)$$

$$\varepsilon_i^{\text{Consulting\_compliance}} \sim N(0,1). \quad (1.c)$$

Cooperation between the manager and the consulting agency is defined by binary variable too. To check which features of the enterprises and managers affect cooperation between the manager and the consulting agency, the following probit model is considered:

$$\text{Consulting\_cooperation}_i^* = \mathbf{x}_i\boldsymbol{\beta}^{\text{Consulting\_cooperation}} + \varepsilon_i^{\text{Consulting\_cooperation}} \quad (2.a)$$

$$\text{Consulting\_cooperation}_i = I\{\text{Consulting\_cooperation}_i^* > 0\}, \quad (2.b)$$

$$\varepsilon_i^{\text{Consulting\_cooperation}} \sim N(0,1). \quad (2.c)$$

To explain the frequency of using business consulting, the following probit model is proposed:

$$\text{Consulting\_frequency}_i^* = \mathbf{x}_i \boldsymbol{\beta}^{\text{Consulting\_frequency}} + \varepsilon_i^{\text{Consulting\_frequency}} \quad (3.a)$$

$$\text{Consulting\_frequency}_i = I\{\text{Consulting\_frequency}_i^* > 0\}, \quad (3.b)$$

$$\varepsilon_i^{\text{Consulting\_frequency}} \sim N(0,1). \quad (3.c)$$

In models (1.a)-(1.c), (2.a)-(2.c), and (3.a)-(3.c),  $\mathbf{x}_i$  consists of variables describing features of managers and enterprises.  $\boldsymbol{\beta}^{\text{Consulting\_compliance}}$ ,  $\boldsymbol{\beta}^{\text{Consulting\_cooperation}}$ ,  $\boldsymbol{\beta}^{\text{Consulting\_frequency}}$  denote the vectors of parameters for the variables that affect the impact of features of managers and enterprises on how much benefits from business consulting comply with expectations, the propensity for managers to cooperate with consultants, and the frequency of using business consulting. To check the assumptions concerning the distribution of the error term (assumptions (1.c), (2.c), and (3.c)), the normality and symmetric distribution of the error term are verified based on the Stukel (1988) test, while homoscedasticity is verified based on the Holden (2011) test. If the distribution of the error term is symmetric but not normal, the parameters of the logit model are estimated. For invalid assumptions concerning symmetrical distribution, the parameters of the complementary log-log model are estimated; in the case of heteroscedasticity, the parameters of the heteroscedastic probit/logit model are estimated (see Cameron & Trivedi, 2005).

After estimating the models (1.a)-(1.c), (2.a)-(2.c), and (3.a)-(3.c), the theoretical values of variables reflecting the use of business consulting are calculated. These theoretical variables<sup>8</sup> are denoted:

$$\begin{aligned} &\widehat{\text{Consulting\_Compliance}}_i^*, \\ &\widehat{\text{Consulting\_Cooperation}}_i^*, \\ &\widehat{\text{Consulting\_Frequency}}_i^*. \end{aligned}$$

In the next step, the parameters of the model that explain the impact of using business consulting on absorptive capacity are estimated:

<sup>8</sup> We calculate theoretical values of variables, since the consulting compliance, the consulting cooperation and the consulting frequency are dependent variables in models (1.a)-(1.c), (2.a)-(2.c) and (3.a)-(3.c) and later are treated as explanatory in models (4.a)-(4.c).

$$Absorptive\_capacity_i^* = \mathbf{x}_i \boldsymbol{\beta}^{Absorptive\_capacity} + \lambda_1 \widehat{Consulting\_Compliance}_i^* + \lambda_2 \widehat{Consulting\_Cooperation}_i^* + \lambda_3 \widehat{Consulting\_Frequency}_i^* + \varepsilon_i^{Absorptive\_capacity}, \quad (4.a)$$

$$Absorptive\_capacity_i = \begin{cases} -1 & \text{if } Absorptive\_capacity_i^* < \mu_1, \\ 0 & \text{if } Absorptive\_capacity_i^* \in \langle \mu_1, \mu_2 \rangle, \\ 1 & \text{if } Absorptive\_capacity_i^* > \mu_2, \end{cases} \quad (4.b)$$

$$\varepsilon_i^{Absorptive\_capacity} \sim N(0,1). \quad (4.c)$$

The model (4.a)-(4.c)  $\boldsymbol{\beta}^{Absorptive\_capacity}$  consists of the parameters reflecting the impact of features of enterprises and managers on knowledge absorptive capacity. In turn, parameters  $\lambda_1$ ,  $\lambda_2$  and  $\lambda_3$  reflect the impact of using business consulting on enterprises' knowledge absorptive capacity.

The theoretical values of the variable  $Absorptive\_capacity_i^*$  are calculated, and this variable is used as explanatory in the equation that explains the improvement in innovativeness:

$$\Delta Innovativeness_i^* = \mathbf{x}_i \boldsymbol{\beta}^{\Delta Innovativeness} + Absorptive\_capacity_i^* \theta_1 + \mathbf{KAC\_BC}_i \theta_2 + \mathbf{BCI}_i \theta_3 + \varepsilon_i^{\Delta Innovativeness}, \quad (5.a)$$

$$\Delta Innovativeness_i = I\{\Delta Innovativeness_i^* > \tilde{\mu}_2\} - I\{\Delta Innovativeness_i^* < \tilde{\mu}_1\}, \quad (5.b)$$

$$\varepsilon_i^{\Delta Innovativeness} \sim N(0,1). \quad (5.c)$$

In equation (5.a), elements of the vector  $\mathbf{BCI}_i$  are defined as follows:

$$\mathbf{BCI}_i = [\widehat{Consulting\_Compliance}_i^* \quad \widehat{Consulting\_Cooperation}_i^* \quad \widehat{Consulting\_Frequency}_i^*]. \quad (6)$$

Elements of the  $\mathbf{KAC\_BC}_i$  consist of products of elements of the vector (6) and elements of the vector:

$$\mathbf{KAC}_i = [I\{Absorptive\_capacity_i = 0\} \quad I\{Absorptive\_capacity_i = 1\}]. \quad (7)$$

The model (5.a)-(5.c)  $\boldsymbol{\beta}^{\Delta Innovativeness}$  consists of parameters reflecting the impact of features of enterprises and managers on improvement in innovativeness.  $\theta_1$  measures the relationship between knowledge absorptive capacity and improvement in innovativeness. In turn,  $\theta_3$  consists of the parameters measuring the impact of using business consulting on improvement in innovativeness. The moderating impact of knowledge



absorptive capacity on the relationship between the use of business consulting and innovativeness is measured with the vector  $\theta_2$ .

In each case, the strategy “from general to specific” (see Charemza & Deadman, 2003) is applied. We start with the unrestricted model that includes all explanatory variables (the base categories are excluded to avoid perfect multicollinearity). Next, we eliminate variables insignificant at the 0.1 level of significance. In the case of all models, we use the Stata15 software in order to estimate parameters.

## RESULTS AND DISCUSSION

Table 9 presents the parameter estimation results of the binary choice models that explain the compliance of business consulting effects with expectations, the cooperation between consultants and managers, and the frequency of using business consulting. Variables not included in the final specifications are statistically insignificant. Apart from the results of the estimation of the parameters, goodness-of-fit of the model is presented using different measures (Mc Fadden R-squared, Percentage of correct predictions, Sensitivity, Specificity, Area under the ROC curve). Moreover, information about the selection of distribution of the error term, as well as results of the testing validity of this selection are presented.

**Table 9.** Parameter estimation results of the binary choice models that explain the use of business consulting

Explanatory variable	Equation explaining Consulting_ compliance		Equation explaining Consulting_ cooperation		Equation explaining Consulting_ frequency	
	Estimate	Marginal effect	Estimate	Marginal effect	Estimate	Marginal effect
<i>Size</i>	-0.013*	-0.003	-	-	0.019***	0.005
<i>Experience_ manager</i>	-	-	0.034*	0.012	-0.065**	-0.018
<i>Age_enterprise</i>	-0.517**	-0.121	0.383**	0.135	0.343*	0.097
<i>Regional_ dominating</i>	-0.324*	-0.072	0.280*	0.103	-0.251*	-0.071
<i>National_ dominating</i>	-	-	0.282*	0.097	-	-
<i>Education_law</i>	1.014*	0.239	-	-	-	-

Explanatory variable	Equation explaining Consulting compliance		Equation explaining Consulting cooperation		Equation explaining Consulting frequency	
	Estimate	Marginal effect	Estimate	Marginal effect	Estimate	Marginal effect
<i>Education technical</i>	-	-	-0.246**	-0.088	-	-
<i>Family_owner_manager</i>	-	-	-	--	0.730***	0.207
<i>Branch_retail</i>	0.509**	0.120	-	-	-	-
<i>Branch_KIBS</i>	-	-	0.327***	0.117	-	-
Mc Fadden R-squared	0.023		0.029		0.082	
Percentage of correct predictions	63%		67%		75%	
Sensitivity	0.66		0.72		0.58	
Specificity	0.61		0.64		0.78	
Area under the ROC curve	0.66		0.67		0.72	
Model	Logit		Complementary log-log		Probit	
P-value for testing validity of assumption concerning distribution of error term	0.45		0.31		0.72	

Note; \*, \*\*, \*\*\* denote significance at the 0.1, 0.05, and 0.01 level of significance, respectively.

The estimation results indicate that enterprise size and age have a statistically significant impact on the probability that benefits of business consulting meet expectations. As the number of workers within the enterprise increases by 1, the probability of high compliance of benefits with expectations increases by 0.003, *ceteris paribus*. For firms older than three years, the probability of a high level of compliance is greater by 0.121, *ceteris paribus*. This may be explained by the fact that larger and older firms use business consulting more often and have greater experience with the services offered by consultancy agencies. Therefore, they can compare the benefits of business consulting with historical experience. It means that barriers to using business consulting have greater importance in microenterprises

than in larger ones (Grabowski & Stawasz, 2017). The low awareness of the advantages of using business consulting, problems with evaluating the quality of external consulting, problems with formulating demand for business consulting, problems with choosing a good consultant, problems with absorbing knowledge, fear of losing control of the company, and disclosing limited powers in the management are treated as obstacles to using business consulting (Kailer and Scheff, 1999). Firms employing at least ten employees are more complex and have greater expectations than microenterprises. Therefore, the maladjustment of solutions used by business consultants to the specifics of the enterprise may be more visible in small firms than in microenterprises (Yusoff, Yaacob, & Ibrahim, 2010).

Enterprises whose regional market is dominant are less satisfied with business consulting than firms whose national or international market is dominant. This may be because business consultants help enterprises in internationalization (Vuorio, Torkkeli, & Sainio, 2020). Therefore, enterprises that use business consulting and still provide products mainly on the regional market may not derive the benefits of business consulting. It turns out that the type of education of a managing person has a statistically significant impact on the level of satisfaction with advisory services. Managers with a legal education are more satisfied with business consulting than managers with a technical education, economic education, or an education in humanities. Managers who are lawyers probably do not use business consulting in the area of law; rather, they use it for accounting, statistical methods, optimization, and technical issues. Since their capabilities in these areas are very often insufficient, business consulting helps them to lead a business.

Enterprises that are active in sales are more often satisfied with business consulting. They very often utilize business consulting agencies that provide market forecasts or that apply optimization methods, among others (Lee & Seo, 2018). Using these methods may help change the production profile and make resource management policy more efficient. Therefore, it is not surprising that business consulting services for retail sales companies are very useful, and the recipients of these services are satisfied.

Various factors determine a consultant and an advisor's propensity to cooperate. More experienced managers may better recognize the advantages and disadvantages of non-cooperative and cooperative business consulting, and they may be more aware of the greater benefits of cooperation (McGivern, 1983).

An enterprise's operating range also has a significant impact on the propensity to cooperate. The result is somewhat unusual since enterprises for which the regional or national market is dominant prefer cooperation between managers and consultants. Internationally active enterprises may

search for specific and advanced advisory services provided by consulting agencies located in other regions. Additionally, advisory services for internationally active enterprises may be specialized, and for these services, cooperation between managers and consultants might not be expected.

The propensity to cooperate turns out to be lower in enterprises whose managers have a technical education. When an enterprise is active in a branch of Knowledge Intensive Business Services (KIBS), the propensity to cooperate is higher by 0.117, *ceteris paribus*. E-commerce is among the most important activities of KIBS, and these firms cooperate with other companies of the KIBS branch who provide appropriate software. Due to the increasing role of information and communication technologies within enterprises (Arendt & Grabowski, 2017) and the increasing role of e-commerce, cooperation among KIBS seems to be crucial (Han & Kim, 2019).

The frequency of using business consulting depends on the size and age of an enterprise, as well as the experience of the manager. Larger and older enterprises more often use business consulting than smaller and newer ones. This is in line with expectations, since older firms and smaller firms have greater financial capabilities and can buy consultancy services more often than young microenterprises (Grabowski & Stawasz, 2017). However, managerial experience is negatively correlated with the frequency of using business consulting. More experienced managers have a better opinion about their own management capabilities (Man, 2012) and have a lower propensity to use business consulting often or very often.

A lower frequency of using business consulting is also observed in firms that mainly operate in a regional market. There are at least two explanations for this result. Firstly, such enterprises do not have the appropriate financial resources to use business consulting more often. Moreover, these firms very rarely provide sophisticated solutions, so they require consultancy services less often. When there are family relations between the owner and the manager, the frequency of using advisory services is higher by 0.207, *ceteris paribus*. It is argued that family managers may act as stewards by considering the company's success as their own, more intensively than agents who seek to achieve personal benefits at the expense of the firm (Charbel, Elie, & Georges, 2013). Therefore, family managers' propensity to use business consulting more often is not surprising.

Results of measuring goodness of fit inform that models fit well with the data. In the case of the equation explaining consulting compliance, the error term follows logistic distribution. The error term follows normal distribution in the case of the model explaining consulting frequency. In the case of the model explaining cooperation between manager and consultant, complementary log-log distribution of the error term turns out to be optimal.

In the next step, the parameters of the ordered choice model that explains knowledge absorptive capacity are estimated. Table 10 presents the results of the estimation of models (4.a)-(4.c) with measuring goodness-of-fit and validity of assumptions concerning homoscedasticity and normality of distribution of error term.

**Table 10.** Results of the estimation of the parameters of the ordered choice model that explains knowledge absorptive capacity

Variable	Estimate	Variable	Estimate
$\widehat{Consulting\_Cooperation}_i^*$	0.126**	<i>Experience_manager</i>	0.022***
$\widehat{Consulting\_Frequency}_i^*$	0.142**	<i>International_dominating</i>	0.625***
Size	-0.017***	$\mu_2$	1.081
$\mu_1$	-0.226		
McFadden R-squared	0.036		
P-value for testing normality of error term	0.46		
P-value for testing homoscedasticity of error term	0.51		

Note: \*,\*\*,\*\*\* denote significance at the 0.1, 0.05, and 0.01 level of significance, respectively.

The positive impact of cooperation on knowledge absorptive capacity is in line with the expectations and results of various empirical studies. For example, the findings obtained by Lu and Huang (2010) indicate that internal advisors exhibit significantly weaker capabilities than consultants, especially in knowledge structure, knowledge transformation, trainee orientation, and training ethics. The capability gap is disadvantageous for firms wanting to absorb consulting knowledge. It means that the work of internal advisors is not sufficient, and cooperation between internal and external advisors helps reduce the knowledge gap.

Differences of opinion and internal conflicts on whether the knowledge assimilated should be used or not are mentioned as the most important reasons why externally sourced knowledge remains unused (Davenport & Prusak, 1998). Cooperation between a consultant and a manager may help reduce these differences of opinion and internal conflicts. Therefore, a greater propensity to cooperate may significantly improve the functioning of an enterprise.

There are also arguments to link the frequency of using business consulting with knowledge absorptive capacity. As Cohen and Levinthal (1990) argue, absorptive capacity largely depends on the level of prior

related knowledge. The first use of business consulting increases the level of prior knowledge, while additional knowledge is absorbed in subsequent uses. Zahra and George (2002) argue that the absorptive capacity is formed by acquisition and assimilation, as well as transformation and exploitation. When an enterprise uses business consulting more often, chances for acquisition, assimilation, transformation, and exploitation are greater. The results confirm the validity of hypothesis H1.

It turns out that managerial experience and an enterprise’s international activity have a positive impact on knowledge absorptive capacity. This result is in line with expectations since a more experienced manager can more critically evaluate external knowledge and choose the knowledge that helps an enterprise function. Moreover, experience positively affects self-efficacy and self-evaluation of management knowledge and knowledge absorptive capacity (Khedhaouria, Gurau, & Torre’s, 2015). International activity requires a higher level of management knowledge. The positive linkage between internationalization and knowledge absorptive capacity confirms the findings of numerous studies devoted to this topic (Tsai, 2001; Agramunt, Berbel-Pineda, Capobianco-Urarte, & Casado-Belmonte, 2020). In Poland the level of knowledge absorptive capacity in the group of microenterprises proved to be larger than in the case of small firms. The obtained results indicate that there is neither a problem of heteroscedasticity nor non-normality of the error term. The imposed assumptions are valid and goodness-of-fit of the model is satisfactory.

In the next step, the parameters of the ordered choice model that explains the improvement in innovativeness are estimated. The results of the estimation are presented in Table 11. Table 11 presents the results of measuring goodness of fit and testing validity of imposed assumptions too.

**Table 11.** Results of the estimation of the parameters of the ordered choice model explaining the improvement in innovativeness

Variable	Estimate
$Absorptive\_capacity_i^*$	0.557***
$Consulting\_Cooperation_i^*$	0.189**
$Consulting\_Cooperation_i^* * I\{Absorptive\_capacity_i = 1\}$	0.516***
$Consulting\_Compliance_i^*$	0.197**
<i>Experience_manager</i>	0.020**
<i>Age_enterprise</i>	-0.454***
<i>Education_low</i>	0.581*
<i>Education_technical</i>	0.312**

Variable	Estimate
$\tilde{\mu}_1$	-0.198
$\tilde{\mu}_2$	0.683
McFadden R-squared	0.065
P-value for testing normality of error term	0.26
P-value for testing homoscedasticity of error term	0.59

Note: \*, \*\*, \*\*\* denote significance at the 0.1, 0.05, and 0.01 level of significance, respectively.

The estimation results indicate that knowledge absorptive capacity has a positive impact on the improvement in innovativeness. The results confirm the validity of hypothesis H3. Absorptive capacity proves to be vital to gain knowledge and utilize it efficiently for innovations (Henderman & Catner, 2018; Audretsch et al., 2020; Nie, Gong, Lai, Jiang, & Dong, 2021). It means that it is strongly recommended for firms from Poland to invest in knowledge and absorptive capacity. Similarly, as in developed countries, investments in knowledge and absorptive capacity significantly improve innovativeness in MSEs in Poland (Audretsch & Link, 2019; Audretsch, Belitski, & Caiazza, 2021; Secundo, Mele, Del Vecchio, & Degennaro, 2021).

The estimation results also indicate that management consultancy firms in Poland and similar economies can fill institutional voids and help implement innovation initiatives (Back et al., 2014). Since institutional theory posits that businesses that receive institutional support tend to outperform non-receivers (Xin & Pearce, 1996), business consulting may help enterprises invest in research and development and introduce product and process innovations. It turns out that in the case of MSEs in a post-transition economy, innovativeness is fostered by interactions with external advisors (Ren et al., 2015). The relationships between managers and business consultants can be a valuable tool of innovation. Greater cooperation increases innovativeness. Moreover, the relationship between cooperation and innovativeness is fostered by absorptive capacity. For enterprises with very high absorptive capacity, the impact of cooperation on the increase in innovativeness is significantly greater.

The results confirm the validity of hypotheses H2 and H4. It means that absorptive capacity not only increases innovativeness but stimulates positive effects of cooperation between a business consultant and a manager. Compliance between expectations and benefits of business consulting positively stimulates the innovativeness of MSEs in Poland. If an enterprise is more satisfied with advisory services, it has a higher propensity to introduce changes, which may lead to innovation (Tokar-Szadai, 2017). Strange findings concern the relationship between frequency of using business consulting and

innovativeness. The results indicate that a higher frequency of using business consulting does not necessarily lead to greater innovativeness. However, the frequency of using business consulting positively affects knowledge absorptive capacity, which stimulates innovativeness. Therefore, it may be argued that the frequency of using business consulting has a direct impact on the improvement in innovativeness.

Four control variables turn out to be significant in the equation that explains the improvement in innovativeness. When managerial experience is greater, innovativeness improves, *ceteris paribus*. Managerial experience is an important external factor in a triangular consulting—absorptive capacity—innovativeness system. More experienced managers have a greater propensity to cooperate with business consultants. Experience increases knowledge absorptive capacity and positively affects innovativeness. These results indicate that business consultants in post-transition economies should try to better explain the contents of consulting to less experienced managers. Business consulting offers should take into account the capabilities of young managers, too. The probability of a strong improvement in innovativeness is lower in older enterprises, although it is observed in companies whose managers have a legal or technical education. It means that consultancy services providers should reconsider their offer to enterprises managed by managers with economic education or education in humanities.

The obtained results indicate that the error term is homoscedastic and follows normal distribution. The imposed assumptions are valid and goodness-of-fit of the model is satisfactory.

As a robustness check, an estimation is conducted with the assumption that ordered variables describing absorptive capacity and improved innovativeness are treated as binary. Values (-1) are replaced by 0. Table 12 presents information concerning the significance and signs of the estimates in the basic and an additional model (a model with binary variables reflecting absorptive capacity and innovativeness).

When the specification of dependent variables changes, then signs of the estimates do not change, and the significance of the parameters is not worse. It tells us about the robustness of the results.



**Table 12.** Results of a robustness check – instead of ordered variables reflecting knowledge absorptive capacity and improvement in innovativeness, binary variables are taken into account

Variable in equation	Basic model	Additional model
$\widehat{Consulting\_Cooperation}_i^*$ in the equation explaining Absorptive capacity	**(+)	***(+)
$\widehat{Consulting\_Frequency}_i^*$ in the equation explaining Absorptive capacity	**(+)	**(+)
$\widehat{Absorptive\_capacity}_i^*$ in the equation explaining improvement of innovativeness	***(+)	***(+)
$\widehat{Consulting\_Cooperation}_i^*$ in the equation explaining improvement of innovativeness	**(+)	***(+)
$\widehat{Consulting\_Cooperation}_i^* * I\{Absorptive\_capacity_i = 1\}$ in the equation explaining improvement of innovativeness	***(+)	***(+)
$\widehat{Consulting\_Compliance}_i^*$ in the equation explaining improvement of innovativeness	**(+)	**(+)

Note: \*, \*\*, \*\*\* denote significance at the 0.1, 0.05, and 0.01 level of significance, respectively.

## CONCLUSIONS AND LIMITATIONS

A triangular system of the relationship between using business consulting, knowledge absorptive capacity, and improvement in innovativeness is studied. An empirical analysis is conducted in 2019 for a representative sample of 382 Polish MSEs. The results of the empirical study indicate that the use of business consulting and cooperation between a consultant and a manager improve absorptive capacity and help increase innovativeness in MSEs in Poland. Though frequent use of advisory services turns out to be an appropriate strategy for microenterprises and small firms in Poland, non-cooperation between advisors and managers is less efficient than cooperation. Cooperation may help reduce differences of opinion and internal conflicts within an enterprise, so a higher propensity to cooperate reduces the knowledge gap, increases absorptive capacity, and has a positive impact on the innovativeness of MSEs in Poland.

According to the institutional theory, businesses that receive support tend to outperform non-receivers. Thus, management consultancy firms in the Polish economy fill institutional voids and help implement innovation initiatives. The innovativeness of MSEs in Poland is fostered by external advisors. However, appropriate cooperation between consultants and managers increases the positive effects of business consulting. Cooperation helps consultants understand an enterprise's problems and expectations,

and it helps managers utilize consulting. Knowledge absorptive capacity is a vital factor in the triangular system. Not only does it increase the innovativeness of MSEs, but it also moderates the role of business consulting in stimulating innovativeness.

Results of the empirical research indicate that hypotheses H1-H4, which are stated in the paper, are valid. However, some exceptions can be found and confirmation of the validity of these hypotheses is not unconditional. Differences concern the impact of different aspects of the use of business consulting (consulting frequency, consulting cooperation, consulting compliance) on knowledge absorptive capacity and innovativeness. For example, the frequency of using business consulting has only a direct impact on innovativeness. In the case of consulting compliance and consulting cooperation, their impact on improvement in innovativeness is indirect and direct.

Though the results indicate that the role of business consultants is very important, some problems have been identified as well. The impact of business consulting on reducing the knowledge gap is stronger in older enterprises led by more experienced managers. Moreover, more experienced managers are able to better utilize business consulting and improve innovativeness. It means that consultancy agencies could reconsider how they provide their services to new enterprises that employ young managers. Institutional support should be directed to providers of business consulting for young enterprises and non-experienced managers. Such incentives could improve knowledge absorptive capacity and increase the innovativeness of MSEs in Poland.

The research is not without limitations. The most important shortcoming is associated with the use of data covering a stable period in the Polish and global economy. In 2019, MSEs in Poland performed well, due to stable energy prices, lack of problems associated with supply chains and high rate of growth of real GDP. After the outbreak of the COVID-19 pandemic, as well as during a significant increase of energy and wheat prices associated with the Russian invasion of Ukraine, an important increase of barriers to development of MSEs is observed. Moreover, the use of data for one country makes inference for the region of the Central and Eastern Europe difficult.

Adopting a comparative perspective covering other countries of Central and Eastern Europe would be a significant research challenge and agenda. In future research, the performance of enterprises in other CEE countries will be studied in order to check whether Polish MSEs are similar to their counterparts from other countries of the region. Additionally, empirical research conducted after the COVID-19 pandemic and covering the period of turbulences in the food and energy market, could provide conclusions concerning the role of business consulting services in times of crisis.

---

## References

- Agramunt, L. F., Berbel-Pineda, J. M., Capobianco-Urarte, M. M., & Casado-Belmonte, L. P. (2020). Review on the relationship of absorptive capacity with interorganizational networks and the internationalization process. *Complexity*, 7604579, 1-20. <https://doi.org/10.1155/2020/7604579>
- Arendt, Ł., & Grabowski, W. (2017). Innovations, ICT and ICT-driven labour productivity in Poland. A firm-level approach. *Economics of Transition*, 25(4), 723-758. <https://doi.org/10.1111/ecot.12135>
- Arendt, Ł., & Grabowski, W. (2019). The role of firm-level factors and regional innovation capabilities for Polish SMEs. *Journal of Entrepreneurship, Management and Innovation*, 15(3), 11-44. <https://doi.org/10.7341/20191531>
- Atkinson, R. D., & Lind, M. (2018). *Big is beautiful. Debunking the myth of small business*. Cambridge, England: MIT Press.
- Audretsch, D. B., & Link, A. N. (2019). Entrepreneurship and knowledge spillovers from the public sector. *International Entrepreneurship and Management Journal*, 15, 195–208. <https://doi.org/10.1007/s11365-018-0538-z>
- Audretsch, D. B., Siegel, D. S., & Terjesen, S. (2020). Entrepreneurship in the public and nonprofit sectors. *Public Administration Review*, 80(3), 468-472. <https://doi.org/10.1111/puar.1320>
- Audretsch, D. B., Belitski, M., & Caiazza, R. (2021). Start-ups, innovation and knowledge spillovers. *Journal of Technology Transfer*, 46, 1995-2016. <https://doi.org/10.1007/s10961-021-09846-5>
- Back, Y., Parbotteeah, K. P., & Nam, D. (2014). Innovation in emerging markets: The role of management consulting firms. *Journal of International Management*, 20(4), 390-405. <https://doi.org/10.1016/j.intman.2014.07.001>
- Bianchi, C. (2014). Internationalization of emerging market firms: An exploratory study of Chilean companies. *International Journal of Emerging Markets*, 9(1), 54-78. <https://doi.org/10.1108/IJoEM-02-2010-0013>
- Bianchi, M., Croce, A., Dell’Era, C., Di Benedetto, C. A., & Frattini, F. (2016). Organizing for inbound open innovation: How external consultants and a dedicated R&D unit influence product innovation performance. *Journal of Product Innovation Management*, 33(4), 492-510. <https://doi.org/10.1111/jpim.12302>
- Blackburn, R. A., Hart, M., & Wainwright, T. (2013). Small business performance: Business, strategy and owner-manager characteristics. *Journal of Small Business and Enterprise Development*, 20(1), 8-27. <https://doi.org/10.1108/14626001311298394>
- Bojica, A. M., Ruiz-Jiménez, J. M., Ruiz-Nava, J. A., & Fuentes-Fuentes, M. M. (2018). Bricolage and growth in social entrepreneurship organizations. *Entrepreneurship and Regional Development*, 30(3-4), 362–389. <https://doi.org/10.1080/08985626.2017.1413768>

- Cameron, A. C., & Trivedi, P. K. (2005). *Microeconometrics. Methods and applications*. Cambridge, England: Cambridge University Press.
- Charbel, S., Elie, B., & Georges, S. (2013). Impact of family involvement in ownership management and direction on financial performance of the Lebanese firms. *International Strategic Management Review*, 1(1-2), 30-41. <https://doi.org/10.1016/j.ism.2013.08.003>
- Charemza, W.W., & Deadman, D.F. (2003). *New directions in econometric practice. General to specific modelling, cointegration, and vector autoregression*. London, England: Edward Elgar Publishing.
- Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1), 128-152. <https://doi.org/10.2307/2393553>
- Coviello, N. E. (2006). The network dynamics of international new ventures. *Journal of International Business Studies*, 37(5), 713-731. <https://doi.org/10.1057/palgrave.jibs.8400219>
- Czerniawska, F. (2004). What sets excellent consulting apart? *Consulting to Management*, 15(3), 47-49. Retrieved from <http://www.efos.unios.hr/konzultantstvo-za-mala-i-srednja-poduzeca/wp-content/uploads/sites/158/2013/04/What-sets-excellent-consulting-apart.pdf>
- Davenport, T. H., & Prusak, L. (1998). *Working knowledge: How organizations manage what they know*. Boston-Massachusetts, The United States: Harvard Business School Press.
- Delanoe, S. (2013). From intention to start-up: The effect of professional support. *Journal of Small Business and Enterprise Development*, 20(2), 383-398. <https://doi.org/10.1108/14626001311326789>
- Doz, Y., Santos, J., & Williamson, P. (2001). *From global to metanational: How companies win in the knowledge economy*. Boston, The United States: Harvard Business School Press.
- Fu, X., Pietrobelli, C., & Soete, L. (2011). The role of foreign technology and indigenous innovation in the emerging economies: Technological change and catching-up. *World Development*, 39(7), 1204-1212. <https://doi.org/10.1016/j.worlddev.2010.05.009>
- Gibson, M. (1998). Avoiding intervention pitfalls in international consulting. *Journal of Management Consulting*, 10(2), 59-65.
- Grabowski, W., & Stawasz, E. (2017). The role of business consulting in creating knowledge and formulating a strategy of development in Polish microenterprises. *Journal of East European Management Studies*, 22(3), 374-396. <https://doi.org/10.5771/0949-6181-2017-3-374>
- Hall, P. A., & Soskice, P. D. (2001). *Varieties of capitalism. The institutional foundations of comparative advantage*. Oxford, England: Oxford University Press.
- Han, J. H., & Kim, H. M. (2019). The role of information technology use for increasing consumer informedness in cross-border electronic commerce: An empirical study. *Electronic Commerce Research and Applications*, 34, 100826. <https://doi.org/10.1016/j.elerap.2019.100826>

- Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica*, 47(1), 153-161. <https://doi.org/10.2307/1912352>
- Henderman, A. H., & Catner, U. (2018). Soft skills, hard skills, and individual innovativeness. *Eurasian Business Review*, 8, 139-169. <https://doi.org/10.1007/s40821-017-0076-6>
- Hitt, M. A., Bierman, L., Shimizu, K., & Kochhar, R. (2001). Direct and moderating effects of human capital on strategy and performance in professional service firms: A resource-based perspective. *Academy of Management Journal*, 44(1), 13-28. <https://doi.org/10.2307/3069334>
- Hoecht, A., & Trott, P. (2006). Innovation risks of strategic outsourcing. *Technovation*, 26(5-6), 672-681. <https://doi.org/10.1016/j.technovation.2005.02.004>
- Hoegl, M., Parboteeah, K.P., & Munson, C. (2003). Team-level antecedents of individuals' knowledge networks. *Decision Sciences*, 34(4), 741-770. <https://doi.org/10.1111/j.1540-5414.2003.02344.x>
- Huang, X., Gao, Q., Fan, D., & Hassan, Z. (2022). How do consulting firms share knowledge with clients in the Arab world? A cultural embeddedness perspective. *Knowledge Management Research & Practice*, 20(4), 580-592. <https://doi.org/10.1080/14778238.2022.2075806>
- Hue, T.T. (2019). The determinants of innovation in Vietnamese manufacturing firms: An empirical analysis using a technology–organization–environment framework. *Eurasian Business Review*, 9, 247-267. <https://doi.org/10.1007/s40821-019-00125-w>
- Hult, G. T., Hurley, R. F., & Knight, G. A. (2004). Innovativeness: Its antecedents on business performance. *Industrial Marketing Management*, 33(5), 429-438. <https://doi.org/10.1016/j.indmarman.2003.08.015>
- Johnsen, T. E., Phillips, W., Caldwell, N., & Lewis, M. (2006). Centrality of customer and supplier interaction in innovation. *Journal of Business Research*, 59(6), 671-678. <https://doi.org/10.1016/j.jbusres.2005.11.003>
- Kailer, N., & Scheff, J. (1999). Knowledge management as a service: Co-operation between small and medium-sized enterprises (SMEs) and training, consulting and research institutions. *Journal of European Industrial Training*, 23(7), 319-328. <https://doi.org/10.1108/03090599910287332>
- Khedhaouria, A., Gurau, C., & Torre's, O. (2015). Creativity, self-efficacy, and small-firm performance: The mediating role of entrepreneurial orientation. *Small Business Economics*, 44(3), 485-504. <https://doi.org/10.1007/s11187-013-9531-7>
- Kmieciak, R., & Michna, A. (2018). Knowledge management orientation, innovativeness, and competitive intensity: Evidence from Polish SMEs. *Knowledge Management Research & Practice*, 16(4), 559-572. <https://doi.org/10.1080/14778238.2018.1514997>
- Lasagni, A. (2012). How can external relationships enhance innovation in SMEs? New evidence for Europe. *Journal of Small Business Management*, 50(2), 310-339. <https://doi.org/10.1111/j.1540-627X.2012.00355.x>

- Lee, Y. H., & Seo, Y. W. (2018). Strategies for sustainable business development: Utilizing consulting and innovation activities. *Sustainability*, *10*(11), 4122. <https://doi.org/10.3390/su10114122>
- Lin, Z., Yang, H., & Arya B. (2009). Alliance partners and firm performance: Resource complementarity and status association. *Strategic Management Journal*, *30*(9), 921-940. <https://doi.org/10.1002/smj.773>
- Love, J. H., & Roper, S. (2005). Economists' perceptions versus managers' decision: An experiment in transaction cost analysis. *Cambridge Journal of Economics*, *29*(1), 19-36. <https://doi.org/10.1093/cje/bei001>
- Lu, I. Y., Huang, T. H., & Huang, I. C. (2010). Consulting knowledge and organisation's absorptive capacity: A communication chain perspective. *The Service Industries Journal*, *30*(12), 2007-2022. <https://doi.org/10.1080/02642060903191090>
- Makadok, R. (2011). The four theories of profit and their joint effects. *Journal of Management*, *37*(5), 1316-1334. <https://doi.org/10.1177/0149206310385697>
- Man, T. W. Y. (2012). Developing a behaviour-centred model of entrepreneurial learning. *Journal of Small Business and Enterprise Development*, *19*(3), 549-566. <https://doi.org/10.1108/14626001211250289>
- McGivern, C. (1983). Some facets of the relationship between consultants and clients in organizations. *Journal of Management Studies*, *20*(3), 367-386. <https://doi.org/10.1111/j.1467-6486.1983.tb00213.x>
- Michelacci, C. (2002). Low return in R&D due to the lack of entrepreneurial skills. *Economic Journal*, *113*(484), 207-225. <https://doi.org/10.1111/1468-0297.00095>
- Mole, K. F., Baldock, R., & North, D. (2013). Who takes advice? Firm size threshold, competence, concerns and informality in a contingency approach. *ERC Research Paper*, 9. Retrieved from <http://enterpriseresearch.ac.uk/wp-content/uploads/2014/01/ERC-RP9-Mole-et-al-Who-takes-Advice.pdf>
- Nie, L., Gong, H., Lai, X., Jiang, J., & Dong, S. (2021). Knowledge spillovers and subsequent innovation in green energy: The role of public R&D. *Environmental Science and Pollution Research*, *28*, 66522-66534. <https://doi.org/10.1007/s11356-021-17206-x>
- Perez-Batres, L. A., & Eden, L. (2008). Is there a liability of localness? How emerging market firms respond to regulatory punctuations. *Journal of International Management*, *14*(3), 232-251. <https://doi.org/10.1016/j.intman.2007.10.004>
- Powell, W.W., & Grodal, S. (2005). Networks of innovators. In J. Fagerberg, D.C. Mowery, & R.R. Nelson (Eds.), *Oxford handbook of innovation* (pp. 56-85). Oxford, England: Oxford University Press.
- Qian, H., & Acs, Z. J. (2013). An absorptive capacity theory of knowledge spillover entrepreneurship. *Small Business Economics*, *40*, 185-197. <https://doi.org/10.1007/s11187-011-9368-x>

- Ren, S., Eisingerich, A. B., & Tsai, H. (2015). Search scope and innovation performance of emerging-market firms. *Journal of Business Research*, 68(1), 102-108. <https://doi.org/10.1016/j.jbusres.2014.04.011>
- Sandberg, R., & Werr, A. (2003). Corporate consulting in product innovation: Overcoming the barriers to innovation. *European Journal of Innovation Management*, 6(2), 106-110. <https://doi.org/10.1108/14601060310475255>
- Schweisfurth, T. G., & Raasch, Ch. (2018). Absorptive capacity for need knowledge: Antecedents and effects for employee innovativeness. *Research Policy*, 47(4), 687-699. <https://doi.org/10.1016/j.respol.2018.01.017>
- Secundo, G., Mele, G., Del Vecchio, P., & Degennaro, G. (2021). Knowledge spillover creation in university-based entrepreneurial ecosystem: The role of the Italian “contamination labs”. *Knowledge Management Research and Practice*, 19(1), 137-151. <https://doi.org/10.1080/14778238.2020.1785347>
- Stanko, M. A., & Calantone, R. J. (2011). Controversy in innovation outsourcing research: Review, synthesis and future directions. *R&D Management*, 41(1), 8-20. <https://doi.org/10.1111/j.1467-9310.2010.00624.x>
- Stawasz, E. (2021). Business knowledge absorptive capacity in micro and small innovative enterprises. *Optimum. Economic Studies*, 104(2), 3-14. <https://doi.org/10.15290/oes.2021.02.104.01>
- Stukel, T. A. (1988). Generalized logistic models. *Journal of the American Statistical Association*, 83(402), 426-431. <https://doi.org/10.2307/2288858>
- Sturdy, A. (2011). Consultancy’s consequences? A critical assessment of management consultancy’s impact on management. *British Journal of Management*, 22(3), 517-530. <https://doi.org/10.1111/j.1467-8551.2011.00750.x>
- Surdej, A. (2014). Firmy rodzinne w perspektywie instytucjonalnych mechanizmów rozwoju państw nisko rozwiniętych: Zarys problematyki. *Przedsiębiorczość i Zarządzanie*, 15(7), 253-268.
- Surdej, A. (2016). What determines the innovativeness of Polish family firms? Empirical results and theoretical puzzles. *Budapest Management Review*, 11, 38-45. <https://doi.org/10.14267/VEZTUD.2016.11.05>
- Suriyakulnaayudhya, P., & Intrawong, W. (2016). The comparative of innovation influence on organization performance of small and medium enterprises. *International Journal of Innovation, Management and Technology*, 7(6), 309-313. <https://doi.org/10.18178/ijimt.2016.7.6.692>
- Tokar-Szadai, A. (2017). Changes in the satisfaction with consulting services according to the opinion of entrepreneurs in North Eastern Hungary 2001-2016. *Journal of Contemporary Economic and Business Issues*, 4(2), 85-96. <https://doi.org/10.2139/ssrn.3633787>
- Tsai, W. (2001). Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation

- and performance. *Academy of Management Journal*, 44(5), 996-1004. <https://doi.org/10.5465/3069443>
- Vuorio, A., Torkkeli, L., & Sainio, L.M. (2020). Service innovation and internationalization in SMEs: Antecedents and profitability outcomes. *Journal of International Entrepreneurship*, 18, 92-123. <https://doi.org/10.1007/s10843-019-00266-z>
- Walker, G., & Weber, D. (1984). A transaction cost approach to make-or buy decisions. *Administrative Science Quarterly*, 29(3), 373-391. <https://doi.org/10.2307/2393030>
- Webber, D. J., Johnson, S., & Fargher, S. (2010). Sector variations in SMEs' use of external business advice. *Local Economy*, 25(4), 339–355. <https://doi.org/10.1080/02690942.2010.498959>
- Wright, C., & Kitay, J. (2002). But does it work? Perceptions of the impact of management consulting. *Briefings in Entrepreneurial Finance*, 11, 272-278. <https://doi.org/10.1002/jsc.603>
- Xin, K. R., & Pearce, J. L. (1996). Guanxi: Connections as substitutes for formal institutional support. *Academy of Management Journal*, 39(6), 1641-1658. <https://doi.org/10.1016/j.jbusres.2005.11.003>
- Yusoff, N. H., Yaacob, R., & Ibrahim, D. (2010). Business advisory: A study on selected micro-sized SMEs in Kelantan, Malaysia. *International Journal of Marketing Studies*, 2(2), 245-257. <https://doi.org/10.5539/ijms.v2n2p245>
- Zahra, S. A., & George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review*, 27(2), 185-203. <https://doi.org/10.2307/4134351>
- Zhou, K. Z., & Li, C. B. (2010). How strategic orientations influence the building of dynamic capability in emerging economies. *Journal of Business Research*, 63(3), 224-231. <https://doi.org/10.1016/j.jbusres.2009.03.003>

## Appendix

The tables below present the distribution of MSEs that used business consulting at least once with regard to size, age and branch of an enterprise Table A1 presents the distribution of enterprises with regard to size. Table A2 presents the distribution of enterprises with regard to age, while Table A3 presents the distribution of enterprises with regard to branch.

**Table A1.** Distribution of enterprises in the sample with regard to size

---

Number of employees	Number of enterprises	Ratio of enterprises
1-4	252	0.66
5-9	50	0.13
10-20	42	0.11
21-49	38	0.10

---



**Table A2.** Distribution of enterprises in the sample with regard to age

Age	Number of enterprises	Ratio of enterprises
Start-up (Less than 1 year)	8	0.02
1-3 years	53	0.14
4-10 years	199	0.52
More than 10 years	122	0.32

**Table A3.** Distribution of enterprises in the sample with regard to branch

Age	Number of enterprises	Ratio of enterprises
Production	39	0.10
Retail	61	0.16
Basic service	198	0.52
Knowledge Intensive Business Services	84	0.22

### Abstrakt

**CEL:** W artykule zaproponowano trójkątny model zależności między doradztwem biznesowym, zdolnością absorpcji wiedzy i innowacyjnością. Badana jest rola zdolności absorpcji wiedzy w stymulowaniu wpływu doradztwa biznesowego na innowacyjność. **METODYKA:** Badanie empiryczne prowadzone jest metodą CATI na podstawie danych dotyczących 382 polskich mikro i małych przedsiębiorstw. Zdefiniowano zmienne jakościowe odzwierciedlające korzystanie z doradztwa biznesowego, zdolność absorpcji wiedzy oraz innowacyjność. Zaproponowano wielowymiarowy model dyskretnego wyboru uwzględniający relacje między tymi konstruktami i oszacowano jego parametry. **WYNIKI:** Wyniki badania empirycznego wskazują, że doradztwo biznesowe w Polsce i podobnych krajach może pomóc firmom we wdrażaniu innowacyjnych rozwiązań. Zdolność absorpcji wiedzy stymuluje innowacyjność i wpływa pozytywnie na relacje pomiędzy korzystaniem z doradztwa biznesowego a poprawą innowacyjności. Choć częstotliwość korzystania z doradztwa biznesowego jest ważnym czynnikiem w podnoszeniu innowacyjności, to współpraca konsultanta z menedżerem ma większe znaczenie. **IMPLIKACJE:** Wyniki badania empirycznego wskazują, że kooperacja między konsultantem a osobami zarządzającymi przedsiębiorstwem może pomóc zredukować różnicę w opiniach i zakończyć konflikty wewnątrz firmy. Doradztwo biznesowe okazuje się mieć bezpośredni i pośredni wpływ na innowacyjność. Pośredni wpływ polega na oddziaływaniu na zdolność absorpcji wiedzy, która jest ważną determinantą innowacyjności. **ORYGINALNOŚĆ I WARTOŚĆ:** Zaproponowano autorski trójkątny model relacji między doradztwem biznesowym, zdolnością absorpcji wiedzy i innowacyjnością. Zaawansowane metody ekonometryczne są wykorzystywane w celu analizy złożonych zależności między wykorzystaniem doradztwa biznesowego, zdolnością absorpcji wiedzy i poprawą innowacyjności. Ponadto wyniki estymacji parametrów modelu ekonometrycznego dostarczają ciekawych rekomendacji dla polityki wspierania rozwoju doradztwa biznesowego w polskiej gospodarce.

**Słowa kluczowe:** doradztwo biznesowe, zdolność absorpcji wiedzy, innowacyjność, wielorównaniowy model dyskretnego wyboru, polityka wspierania rozwoju, model ekonometryczny, gospodarka

## Biographical notes

**Wojciech Grabowski**, Ph.D. Habilitated, an associate professor in the Department of Econometric Models and Forecasts at the University of Lodz. He specializes in limited dependent and qualitative variables models and applies these methods in the economics of innovation and entrepreneurship, as well as in modeling macroeconomic phenomena (currency crises, foreign exchange interventions). He has published several papers in high-quality international and Polish journals, authored and co-authored a number of books, and participated in many prestigious economic conferences. Moreover, he has participated as principal investigator and co-investigator in numerous research projects financed by the National Science Centre, Poland, the European Commission, and other public institutions.

**Edward Stawasz**, Ph.D. Habilitated, an associate professor in the Department of Entrepreneurship and Industrial Policy at the University of Lodz. His research, publication, and consulting activities focus on entrepreneurship and business management, innovation management, technology management and commercialization, and business advice for SMEs. He has long experience as the head, and as a participant of research projects and he is the author and a co-author of about 150 publications in the field of SME management and innovation management.

## Conflicts of interest

The authors declare no conflict of interest.

## Citation (APA Style)

Grabowski, W., & Stawasz, E. (2023). Business consulting, knowledge absorptive capacity, and innovativeness: A triangular model for micro and small enterprises in Poland. *Journal of Entrepreneurship, Management, and Innovation*, 19(1), 7-40. <https://doi.org/10.7341/20231911>