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Impact of Organizational Culture on the Innovation in IT Companies: A Quantitative Research on IT Companies in the Lubusz Voivodeship, Poland*

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Abstract

In today's turbulent environment, innovation has become key to the survival of not only individual companies but sometimes entire economies. The constantly changing global economy forces companies to take steps to improve their innovation. To achieve this, companies must recognize the factors that can improve their innovation. One factor that significantly influences the innovativeness of companies is a well-developed organizational culture—a culture that supports innovation, encouraging employees to be creative, to propose ideas, and to work on innovations. A literature review reveals a significant number of studies addressing the topic of innovation and its determinants, but only a few address the organizational culture that supports innovation. This study aims to fill this gap to some extent. The aim of this study is to identify the relationship between the organizational culture of the surveyed entities and their innovativeness and the results of their innovation activities.
The data presented in the study were collected by the author through primary research using standardized interviews and surveys, and the respondents were members of the management staff of IT companies.

Keywords: innovation, innovation culture, organizational culture, IT organizations

Introduction

In recent, rather turbulent years, researchers have increasingly emphasized that innovation is becoming the key to improving people's quality of life, but not only that. Innovations are becoming the basis for the success of individual enterprises, but also entire economies [e.g., Kacem and El Harbi, 2014, Santos and Álvarez, 2007, Wojtowicz, Mikos, and Karaś, 2018, Karczewska, 2020]. The dynamically changing business environment will even force enterprises to create innovations, which will then be presented to customers in the form of new products or services. Therefore, identifying factors that can improve enterprise innovation is becoming increasingly important in management sciences [Iranmanesh et al., 2021; Karczewska, 2020; Bakhsh et al., 2024].

It can therefore be concluded that in the new economic climate, innovativeness of enterprises seems to be their most important feature, and innovative behaviors of people in the workplace are becoming the basis for high corporate performance. It is therefore worth noting that knowledge about the factors that motivate employees or enable them to behave innovatively is becoming crucial for enterprises, as creativity is considered a precursor to innovation [Karczewska 2020].

Innovations are understood in various ways in the literature, and therefore they are defined in various ways. One of the first authors to define innovation was J. Schumpeter, who stated that innovation is the activity of entrepreneurs based on creating new combinations of existing factors of production, under conditions where the outcome of this process cannot be easily predicted [Schumpeter 1960; Marciniec 2009].

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Innovation can also be viewed as the successful implementation of a creative idea or the generation of ideas that are both useful and innovative [George, 2007]. In turn, A. Kucińska-Landwójtowicz [2013] points out that innovation is nothing other than the process of creating changes in processes, services, and products, and these changes can be small or large, radical or incremental.

The Oslo Manual [2018] defines innovation as the implementation of a new or significantly improved product, process, marketing, or organizational method in an organization's business practices, workplace, or relationships with the environment. Therefore, four main types of innovation are distinguished:

- product innovations concerning products and services,
- process innovations relating to new or significantly improved manufacturing methods, new or significantly improved logistics and distribution methods, and new or significantly improved methods supporting enterprise processes,
- organizational innovations relating to the application of new methods in operating principles, new methods of allocating tasks and decision-making authority, as well as new organizational methods in relationships with the environment.
- marketing innovations relating to significant changes in the design, construction, or packaging of products or services, new media or techniques for product promotion, new trends in product distribution across sales channels, and new methods of pricing products and services [Oslo Manual, 2018]. This approach to innovation and this classification of innovations were adopted in this study.

Factors influencing enterprise innovation, i.e., determinants of innovation, can be considered at three different levels: individual, group, and systemic [Flynn and Chatmann 2010]. Individual-level determinants include personality, commitment, and learning. Group-level determinants include teamwork, as a form of work, as well as team characteristics such as size, norms, cohesion, durability, diversity, leadership, and communication. At the systemic level, organizational structure and culture, including a culture that supports innovation, are most often mentioned [Flynn and Chatmann 2001, Inków 2022]. Organizational culture proves to be an extremely important factor in determining enterprise innovation, often determining the success or failure of innovation activities within the organization [Martins and Terblanche 2003; Loewe and Dominiguini 2006; Gadomska-Lila 2011

Organizational culture and organizational culture supporting innovation

The concept of organizational culture has been of interest to management researchers for several decades. As noted by P. Klimas [2014], in the field of strategic management, considerations regarding organizational culture are conducted primarily in the context of the importance of organizational culture for creating and maintaining competitive advantage.

One of the anthropologists who had a significant influence on research on organizational culture was C. Geertz, who presented an interpretive theory of culture [Paliszkiewicz 2007]. The aforementioned researcher noted that humans are animals trapped in a web of meanings [Greetz 1973].

There are a significant number of definitions of organizational culture in the literature. As noted by A. Glińska-Neweś [2010], these definitions can be divided into three basic groups. The first group comprises metaphors such as "coating of meaning," "social glue," or "giving meaning." The second group of definitions relates to the identification of organizational culture with the entire organization, because each element of an organization, from employee behaviors and attitudes, through procedures and strategies implemented in the organizational structure, can be treated as a manifestation of culture. For this reason, these elements should be viewed together. The last group of definitions is the broadest, encompassing the proposals of researchers who perceive culture as one of the elements of an organization [Chuda and Wyrwicka, 2017].

It should be emphasized that one of the greatest theories of organizational culture is presented as the common assumptions and assumptions of employees about the organization and its environment [Schein 2004].

K.S. Cameron and R.E. Quinn [2006] believe that organizational culture is manifested in values, dominant leadership styles, language, symbols, methods of conduct, routines, and the definition of success. For this reason, according to the aforementioned authors, each organization creates its own culture, as these are the characteristic features that distinguish each organization.

K.M. Tama [2019], in turn, believes that organizational culture, sometimes identified with corporate culture, is a set of values and norms that have been accepted and are adhered to by members. Culture in this approach creates

a sense of belonging among organizational members. Organizational culture can also be used as a framework for the behavior of organizational members. Therefore, it can be said that organizational culture leads to specific decisions and directs the actions of organizational members to achieve organizational goals [Tama 2019, Oksanych 2022].

When discussing the concept of organizational culture, it is worth adding that many authors are increasingly paying attention to the connections between organizational culture and organizational innovation, hence, there are more and more publications on organizational culture supporting innovation, often called innovative culture [e.g. Żołnierski 2017, Chen et al. 2018; Aboramadan et al., 2020; Azeem et al., 2021; Oksanych 2022, Inków 2022].

Innovation culture can be described as a set of beliefs and concepts that motivate organizations to be creative. Innovation culture fosters an environment of ingenuity, openness to new ideas, and responsiveness in decision-making [Waheed et al. 2019, Ahmad et al. 2023]. Innovation culture can also be defined as a set of rules and artifacts of organizational culture that provide the basis for enterprises to engage in innovation [Yun et al. 2020]. It is worth mentioning here that innovation culture supports the creation of new ideas. Furthermore, in cultures that support innovation, values are communicated verbally and nonverbally, which helps shape individual and organizational behavior. Therefore, innovation culture can be viewed as a dominant determinant that significantly enhances organizational innovation [Ahmad et al. 2023]. Organizations often invest in research and development activities and projects to provide talented employees with the opportunity to transform their ideas into innovations [Hock-Doepgen, Clauss, Kraus, and Cheng, 2021, Bakhsh et al., 2024, Helmy, Adawiyah, and Banani, 2019]. Innovative organizational culture is increasingly seen as a key element driving innovative activities in enterprises. Moreover, innovative culture synergistically influences other factors in the organization that contribute to the development of innovative capabilities in the organization [Lam et al., 2021].

It is worth emphasizing that an innovative culture that fosters creativity can encourage employees to maintain high quality of work, to develop skills and creativity, which favors the development of new products, services and processes [Ahmad et al. 2023].

When characterizing an innovative culture, it should be noted that it is a culture in which every innovative success is rewarded and, importantly, failures are not penalized, because making mistakes while implementing ideas is better than a situation in which the absence of errors results from employees taking no action in presenting and implementing new ideas within the company. Crucial to this process is that the organization enables the free exchange of ideas between employees, and each presented idea is met with understanding, while the benefits that arise from the implementation and success of a given idea are distributed to all in proportion to their contribution (Popławski 2007, Inków 2023).

Description of the research

This study was conducted among IT companies in the Lubusz Voivodeship, Poland.

According to data from the Marshal's Office of the Lubusz Voivodeship, the IT industry in this region deserves special attention, as it is conquering global markets with solutions created for digital television operators or space industry. It should be added that Lubusz enterprises offer a range of proprietary business solutions, for exaple including ERP systems, airport-specific systems, and real-time object location systems. The leaders of the IT industry in the Lubusz Voivodeship include companies such as Streamsoft, Sygnity Business Solutions (Max Elektronik), Apator-Rector, IMP Poland, HertzSystems, Patents Factory, RTLS (Astec), Meta Pack Poland, SIDIUS, and Rublon [Inków 2023].

It is worth noting that, although the IT industry is perceived as important for the development of the Lubusz Voivodeship, it has not been sufficiently researched to date, which is why the author decided to conduct her research in the Lubusz Voivodeship.

The author used two methods to collect data. Initially, standardized interviews were conducted, followed by a survey. Members of the management staff of the surveyed companies participated in the study. Seventy entities participated in the study, and their structure is presented in Table 1.

Table 1. Structure of the surveyed entities

Enterprise size	Mikro	Small	Medium	Large

Number of entities participating in the study	51	14	2	3

Source: own elaboration

After analyzing the data from Table 1, it can be concluded that the structure of the surveyed entities is inappropriate, however, such a structure of the surveyed enterprises is dictated by the significant fragmentation of the IT industry in Poland, including in the Lubuskie Voivodeship.

Referring to the structure of enterprises comprising the IT industry in Poland, it must be said that a rather specific phenomenon, characteristic of the Polish market, is its strong fragmentation. On the one hand, this can be seen as a characteristic of innovative, rapidly changing industries such as IT. On the other hand, in the case of Poland, this is compounded by the low degree of consolidation of local enterprises and their young age. The consolidation that took place in the first decade of the 2000s led to the creation of several strong companies that coped with varying degrees of success during the subsequent years of economic slowdown [Inków 2023].

Fifty-one of the surveyed companies reported conducting innovative activities over the past three years. However, not all of these companies conducted activities in all areas, i.e., process, product, organizational, and marketing.

It should also be added here that this study presents only a fragment of broader research on the determinants of innovation maturity of enterprises.

To measure the culture supporting organizational innovation, the author used a construct consisting of sixteen statements. To develop this construct, statements from the innovation maturity model developed by KPMG [2014] and the Innovation Audit v2 [Human-Centered Change and Innovation Innovation] model were adapted. The study achieved a Cronbach's alpha of 0.935083399 (Table 2).

Table 2. Statements used to measure innovative culture

Code	Assessed statement
Kul01	Internal rewards (for example: greater autonomy, better opportunities for personal development) are an essential part of the organization's incentive system
Kul02	Employees are rewarded (financial and non-financial rewards) for innovation
Kul03	There is a clearly defined system of rewards for innovation within the organization.
Kul04	Generating ideas and experimenting is valuable
Kul05	Promotion is awarded in recognition of creativity, initiative and innovation.
Kul06	All ideas of the employees are taken into account.
Kul07	Employees are encouraged to speak and learn from each other.
Kul08	Everyone is motivated to update their knowledge and skills
Kul09	Individuals can take risks as long as they do not harm the organization.
Kul10	Conflicts are resolved through constructive discussion.
Kul11	In the organization, we try to question the way things have always been done and we look for a better way.
Kul12	There is good communication between departments.
Kul13	Information is clearly shared with employees.
Kul14	There is unity and open communication in work teams.
Kul15	Decisions are communicated according to the existing hierarchy in the company.
Kul16	Employees have an open channel of communication with their immediate supervisor / manager.

Source: own study based on KPMG (2014).

A five-point Likert scale was used to evaluate each statement. Respondents were asked to respond to each statement in relation to their organization and rate their level of agreement with each statement on a scale of 1 to 5.

When examining the innovative activity of respondents, they were asked in how many areas they had conducted innovation (I0). A score of 1 meant that the company had not conducted any innovation activity at all, while a score of 5 meant that the company had conducted innovation activity in each of the four areas: product, marketing, process, and organizational innovation.

When examining the type of activities undertaken by respondents for each type of innovation, respondents were asked to indicate whether: no work had been undertaken (score 1), work had been undertaken (2), new solutions had been implemented at the organizational level (3), new solutions had been implemented at the market level (4), or new solutions had been implemented globally (5). To assess the level of novelty of the introduced solutions, respondents were asked to choose one of the statements for each type of innovation that best characterized the given company: the company does not work on innovations (score 1); the company primarily focuses on adopting solutions from the market (2); the company primarily focuses on adopting solutions from the market, but also on developing completely new solutions (3); the company primarily focuses on developing completely new solutions, but also adopting solutions from the market (4); and the company primarily focuses on developing new solutions (5).

The success of innovation activity (IS) was measured using a single statement: "Whether the innovation activity conducted over the last 3 years was successful, i.e., the successful implementation of the innovation," which respondents rated on a scale of 1 to 5, where 1 meant strongly disagree and 5 meant strongly agree. This statement was used to assess the success of each type of innovation activity.

Research Results

Moving on to the analysis of the survey results obtained among companies declaring innovative activities (Table 3), it can be seen that as many as nine of the sixteen statements comprising the scale received an average score above 4. This means that in the surveyed companies, firstly, employees have an open channel of communication with their immediate superiors (KUL16), and decision-making is carried out in accordance with the organizational hierarchy (KUL15). It is worth emphasizing that unity and open communication also prevail within the work teams in the surveyed companies (KUL14), as well as between individual departments (KUL12). Furthermore, it is worth emphasizing that information is made available to employees in a comprehensible manner (KUL13). Employees are encouraged to speak up and learn from each other (KUL07) and update their knowledge and skills (KUL08). Generating ideas and experimenting are considered valuable to the organization (KUL04). The lowest score was given to statement KUL03, where the average score for the statement slightly exceeded 2.5, which means that only a few of the surveyed enterprises have a formal, clearly defined system of rewarding innovation.

Table 3. Descriptive statistics for individual elements of the innovation-supporting culture scale for companies conducting innovative activities in at least one area, N=51

Variable	Descriptive statistics						
	Mean	Confidence -95,000%	Confidence 95,000%	Median	Variance	Std Dev	Standard error of the mean
KUL01	3,254902	2,874041	3,635763	3,000000	1,833725	1,354151	0,189619
KUL02	3,176471	2,723988	3,628953	4,000000	2,588235	1,608799	0,225277
KUL03	2,529412	2,064353	2,994471	2,000000	2,734118	1,653517	0,231539
KUL04	3,862745	3,520494	4,204997	4,000000	1,480784	1,216875	0,170397
KUL05	3,294118	2,887341	3,700894	3,000000	2,091765	1,446293	0,202522
KUL06	3,803922	3,495722	4,112121	4,000000	1,200784	1,095803	0,153443
KUL07	4,431373	4,191036	4,671709	5,000000	0,730196	0,854515	0,119656
KUL08	4,235294	3,980060	4,490528	4,000000	0,823529	0,907485	0,127073
KUL09	3,803922	3,448072	4,159771	4,000000	1,600784	1,265221	0,177166
KUL10	4,313725	4,071845	4,555606	5,000000	0,739608	0,860005	0,120425
KUL11	3,647059	3,339867	3,954250	4,000000	1,192941	1,092218	0,152941
KUL12	4,274510	4,042047	4,506973	4,000000	0,683137	0,826521	0,115736
KUL13	4,274510	4,028812	4,520207	5,000000	0,763137	0,873577	0,122325
KUL14	4,372549	4,154975	4,590123	5,000000	0,598431	0,773583	0,108323
KUL15	4,333333	4,077613	4,589053	5,000000	0,826667	0,909212	0,127315
KUL16	4,686275	4,522371	4,850178	5,000000	0,339608	0,582759	0,081603

Source:[Inków 2023]

KUL01-KUL16 - as in table 2.

It's worth emphasizing that the results obtained by companies not conducting innovative activities, despite the lower average scores, are distributed similarly. Again, the statement regarding the organization's having a reward system for innovation received the lowest rating, while the highest ratings were given to statements KUL 07-KUL16.

Table 4. Descriptive statistics for individual items of the innovation-supporting culture scale, for companies not conducting innovation activities, N=19

Variable	Descriptive statistics						
	Mean	Confidence -95,000%	Confidence 95,000%	Median	Variance	Std Dev	Standard error of the mean
KUL01	2,263158	1,665417	2,860899	2,000000	1,538012	1,240166	0,284514
KUL02	2,315789	1,561319	3,070260	2,000000	2,450292	1,565341	0,359114
KUL03	1,368421	1,080549	1,656293	1,000000	0,356725	0,597265	0,137022
KUL04	3,421053	2,772096	4,070010	3,000000	1,812865	1,346427	0,308892
KUL05	1,894737	1,317813	2,471660	1,000000	1,432749	1,196975	0,274605
KUL06	2,789474	2,043150	3,535797	3,000000	2,397661	1,548438	0,355236
KUL07	3,631579	2,984719	4,278439	4,000000	1,801170	1,342077	0,307893
KUL08	3,578947	2,929990	4,227904	4,000000	1,812865	1,346427	0,308892
KUL09	3,210526	2,536917	3,884136	3,000000	1,953216	1,397575	0,320626
KUL10	3,631579	2,965065	4,298092	4,000000	1,912281	1,382852	0,317248
KUL11	3,210526	2,618495	3,802558	3,000000	1,508772	1,228321	0,281796
KUL12	3,631579	3,025936	4,237222	4,000000	1,578947	1,256562	0,288275
KUL13	4,000000	3,337576	4,662424	5,000000	1,888889	1,374369	0,315302
KUL14	4,263158	3,813245	4,713071	5,000000	0,871345	0,933459	0,214150
KUL15	3,526316	2,938891	4,113740	4,000000	1,485380	1,218762	0,279603
KUL16	3,894737	3,254208	4,535265	4,000000	1,766082	1,328940	0,304880

Source:[Inków 2023]
KUL01-KUL16 - as in table 2.

It is worth adding that enterprises that have not yet conducted innovative activities are making some efforts to build at least a residual innovation culture. This may lead to the emergence of innovations in the future.

Although the literature contains numerous arguments suggesting that a culture that supports innovation is crucial for a company to be innovative, calculating Spearman's rank correlation coefficients (Table 5) reveals a positive, statistically significant correlation between the number of areas in which innovation activity (IO) was conducted in the surveyed companies and innovation culture, though not very strong. A positive, moderately strong, statistically significant correlation also exists between innovation success (SI) and innovation culture. Therefore, it can be concluded that a culture that supports innovation in the surveyed companies is important, firstly, in terms of the ability to conduct innovation activity and, secondly, in achieving success in this activity, which is crucial for every company. However, no statistically significant relationship was found between culture and the type of activity undertaken by the surveyed companies in connection with their innovation activity (RIN), nor was there a relationship between innovation culture and the degree of novelty of the developed innovative solutions (PI).

In summary, it can be noted that a culture that supports innovation can indeed contribute to an organization's innovative activity, but it has little correlation with the type of innovations developed by companies. Nor is it related to whether the new solutions developed by an organization are new only within the organization, or also at a market or even global scale. There is also no correlation between a culture that supports innovation and whether a company focuses on adopting market solutions or developing entirely new ones. However, it should be emphasized that an innovative culture is related to companies' success in pursuing innovation.

Table 5. The relationship between the culture supporting innovation and the conducted innovation activities and their results N=51.

Variable	Spearman rank order correlation. Signified correlation coefficients are significant with p < .05000.			
	IO	**RIN**	**PI**	**SI**
KUL	0,261250	0,272347	0,233876	0,351664

Source: own elaboration

Legend:
Coefficients marked in red are statistically significant.
KUL - culture supporting innovation.
IO - number of areas in which innovation activity was conducted (from 1 to 4).
RIN - type of activities undertaken as part of the conducted innovation activity.
SI - success in the scope of conducted innovation activity.
PI – level of novelty of introduced innovative solutions (emphasis on adopting solutions from the market, emphasis on creating completely new solutions).

To better understand which elements of innovation culture are associated with the innovative activity of the surveyed enterprises, correlation coefficients were calculated between individual elements of the innovative culture construct and selected variables. Analyzing the data in Table 6, it can be seen that idea generation and experimentation (KUL04) are moderately correlated with the type of activities undertaken as part of innovation activities in the field of product innovations (RIN01) and with the level of novelty of introduced solutions, including product innovations (PI01). Considering all employee ideas (KUL06), on the other hand, is moderately correlated with the number of areas in which the enterprise conducts innovation activities (I01), with the type of activities undertaken as part of innovation activities in the field of organizational innovations (RIN04), and with the level of novelty of introduced solutions, including organizational innovations (PI04). Rewarding employees for innovation (KUL02) is correlated with the level of novelty of introduced product innovations (PI01). Awarding promotions in recognition of creativity and innovation (KUL05) is moderately related to the level of novelty in terms of organizational innovations (PI04). The correlations found in the remaining cases (marked in red) are statistically significant, but quite weak.

Table 6. Correlation coefficient between innovative culture and selected variables, N=51.

Variable	Spearman rank order correlation. Signified correlation coefficients are significant with p < .05000.								
	I01	**RIN01**	**RIN02**	**RIN03**	**RIN04**	**PI01**	**PI02**	**PI03**	**PI04**
KUL01	0,069995	0,123117	0,118262	0,081268	0,242197	0,143509	0,024139	0,213881	0,270920
KUL02	-0,032625	0,352824	0,039810	0,035002	0,084470	0,435977	-0,041166	0,167071	0,144765
KUL03	0,334769	0,297568	0,131158	0,177671	0,298356	0,268464	0,127978	0,282956	0,283685
KUL04	0,198916	0,388808	0,291771	0,226902	0,263096	0,429782	0,197643	0,152707	0,225407
KUL05	0,270637	0,068080	0,221942	0,201875	0,394300	0,089933	0,115329	0,289863	0,442218
KUL06	0,414616	0,244379	0,313817	0,388142	0,522132	0,215440	0,267742	0,310150	0,504137
KUL07	0,120276	0,183953	0,179424	0,073277	0,197780	0,236468	0,079591	0,038350	0,191658
KUL08	0,137213	0,097225	0,156778	0,072551	0,339129	0,143536	0,033305	0,135115	0,343277
KUL09	0,253720	0,320810	0,175177	0,242802	0,267229	0,370905	0,211135	0,220117	0,307933
KUL10	-0,008202	0,008246	0,349027	-0,020123	0,172259	0,112137	0,223423	-0,113852	0,066327
KUL11	0,186300	0,245544	0,200578	0,236612	0,391320	0,290425	0,084476	0,221352	0,368359
KUL12	-0,219014	-0,202406	-0,051125	-0,152569	0,166411	-0,036957	-0,179843	-0,120438	0,120000
KUL13	-0,243702	-0,260777	0,012295	-0,308866	-0,044746	-0,069144	-0,134066	-0,107772	0,109729
KUL14	-0,065139	-0,185027	0,064106	-0,152839	0,141387	-0,063298	-0,036759	-0,053655	0,203350
KUL15	-0,339224	-0,346819	-0,168618	-0,342594	-0,050035	-0,201801	-0,306671	-0,187191	-0,012653
KUL16	-0,197423	-0,065815	0,159209	-0,194183	-0,006464	0,022063	0,028886	-0,202785	0,001951

Source: own elaboration
Legend:
Coefficients marked in red are statistically significant.
KUL - culture supporting innovation (labels as in Table 2).

IO - number of areas in which innovation activity was conducted (from 1 to 4).

RIN01-RIN04 - type of activities undertaken as part of the innovation activity, for product, marketing, process, and organizational innovations, respectively.

PI01-PI04 - level of novelty of the introduced innovative solutions (emphasis on adopting solutions from the market, emphasis on creating completely new solutions) for product, marketing, process, and organizational innovations, respectively.

Regarding the success of innovation activities, as can be seen from the data in Table 7, a culture supporting innovation primarily influences the success of innovation activities in the field of organizational innovation (SI04), followed by marketing innovation (SI02), and then product innovation (SI01). The weakest relationship was demonstrated between innovation culture and process innovation (SI03).

Table 7. Correlation coefficient between innovation-supporting culture and the success of conducted innovation work, N=51.

Variable	Spearman rank order correlation. Signified correlation coefficients are significant with p < .05000.			
	SI01	**SI02**	**SI03**	**SI04**
KUL01	0,132485	0,246254	0,132047	0,364844
KUL02	0,357015	0,181152	0,070075	0,227127
KUL03	0,292788	0,208887	0,192703	0,375168
KUL04	0,177874	0,394617	0,197817	0,321032
KUL05	0,017149	0,341323	0,258471	0,568272
KUL06	0,083728	0,390172	0,380970	0,608258
KUL07	0,183723	0,245454	0,059064	0,273951
KUL08	0,020828	0,217814	0,103202	0,460837
KUL09	0,448973	0,268654	0,227942	0,320028
KUL10	0,105991	0,384186	-0,041887	0,220744
KUL11	0,092377	0,348647	0,243478	0,472177
KUL12	-0,027874	0,104989	-0,164171	0,186531
KUL13	-0,085782	0,153836	-0,202424	0,163470
KUL14	-0,076721	0,113766	-0,103582	0,270586
KUL15	-0,129385	-0,081850	-0,267482	0,029358
KUL16	-0,020985	0,181613	-0,202012	0,036069

Source: own elaboration
Legend:
Coefficients marked in red are statistically significant.
KUL - culture supporting innovation (labels as in Table 2).
SI01-SI04 - success of innovation activities (effective implementation), respectively, of product, marketing, process, and organizational innovations.

Conclusion

As mentioned in this paper, innovation and innovativeness have become the foundation of the functioning of enterprises and entire economies. The turbulent changing environment requires enterprises to quickly adapt to changes, offering new and significantly improved products faster than their competitors, which creates a certain level of innovation pressure. For innovations to emerge within an organization and to be effectively introduced to the market, favorable conditions must be created. These conditions stem, in part, from an appropriate organizational culture, or more specifically, a culture that supports innovation—an innovative culture, which is increasingly being presented as the core of an organization.

The results of the presented study indicated that there is a relationship between companies' innovation culture and their innovation performance, although it is not as strong as previous work by other authors would suggest. The research also confirmed that innovation culture contributes to more effective innovation implementation, not just its development.

The study results indicate that the strongest correlation exists between a culture supporting innovation and organizational innovation in the surveyed enterprises. This provides a basis for concluding that an appropriate organizational culture supporting innovation primarily allows enterprises to introduce new or significantly improved management methods, create organizational structures more tailored to the specific needs of the enterprise, and better utilize their resources, including relational capital. It also allows enterprises to adapt more quickly to the requirements of a dynamically changing environment and market. This, in turn, provides a starting point for creating marketing, product, and process innovations. Therefore, it is worthwhile to build a culture supporting innovation within enterprises. Due to certain limitations of this study, such as its limitation to a single region, which is admittedly similar in structure to the rest of the country, and the relatively small number of surveyed enterprises, this work should be considered a guide for further, in-depth research on this topic, which should encompass additional voivodeships and ultimately the entire territory of Poland.

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