
Information Management and Relations between Polish Enterprises and Clients

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Abstract:

Purpose: Enterprise management, including, or perhaps above all, the area related to information, in conditions of globalization and the speed of market changes, is a great challenge for managers. The main aim of this study is to investigate the importance of information management in Polish enterprises and cities.

Design/Methodology/Approach: The first part of the paper contains a literature analysis of the issues raised. The second, practical part contains the results of the conducted research.

Findings: In such reality, it should be recognized that the company's ability to integrated and unified information management, covering all areas and aspects of functioning, is a prerequisite for market success.

Practical Implications: The study covered professionally active people and those who had no employment and was targeted at people of all ages. The logical structure of the publication is related to the verification of the main research hypothesis, according to which improvement in the area of information flows in the information space of an enterprise affects the improvement of management processes.

Originality Value: It is a first attempt of its kind trying to verify the importance of information management in enterprises and cities.

Keywords: Information, information management, relations, enterprises.

JEL codes: M1, O3.

Paper type: Research article.

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1. Introduction

Information management is one of the most important elements of the company's success in the context of globalization and market dynamics (Muneer, 2020). It covers all activities related to the acquisition, creation, processing, use and dissemination of information. One of the basic determinants of the effectiveness of information management is a comprehensive approach to all its areas and aspects of interest. This is due to the fact that information is the basic causative agent of all human actions and activities, as well as the fact that technological development, in particular ICT (Jelonek, 2018) led to the blurring of the limits of time and place of functioning in the virtual dimension, which results in freedom in accessing and sharing information (Guo *et al.*, 2020). Any information generated in the enterprise has an impact on this enterprise. It is the causative factor of actions: other employees, clients, competitors, units having a specific impact on the efficiency and position of the enterprise.

Technological factors affecting the dynamics of information dissemination mean that any information coming out of an enterprise causes effects whose range, and hence the impact, increases rapidly. They are therefore difficult to control. The worst possibility here is information generated and delivered to the environment, which is beyond the awareness of the organization. Another aspect affecting the need for a comprehensive approach to information management is the direct impact of its effectiveness on the company's effectiveness as a participant in the global and dynamic "market game". The speed of change, the need to seize opportunities and to avoid threats require efficiency. There is no time for delays or inability to identify and respond to signals. It is related to the need to organize an efficient information management system, so as to reduce the time (as much as possible) from identifying information to its practical use and introduction to the environment. The introduction applies both to information as a direct effect of the action and information as a factor accompanying activities in the physical dimension - e.g. new and / or modified elements of the offer.

The paper focuses both on this dimension of information management that occurs inside the organization and the interface between the enterprise and the client. Most importantly, actions in these areas should be undertaken comprehensively.

2. Management Improvement and Information Management Efficiency

As M. Trenkner rightly observes, "the need to be an effective, flexible, change-oriented organization and adapting to a rapidly changing environment are the main reasons for striving for excellence" (Trenkner, 2016). The quoted statement perfectly reflects the need, or rather the key role of information management in the enterprise management process, and in improving this management. Efficiency and flexibility oriented on quick adaptation to changes are in fact nothing other than the basic goals of information management (Todericiu, 2020).

Information management results from the need to provide adequate information resources to specific "participants" of the company. The goal is to carry out the tasks assigned to them in an optimal way. This applies to the unit, but mainly to the entire system. Information management tasks include storage, processing and sharing (Krztoń, 2017). Considering the reality in which modern organizations operate, it is necessary to carry out these tasks in the shortest possible way.

The process of improvement, including management improvement, is based on the Deming cycle. The dynamics of changes, uncertainty, globality - means that the organization not only wants to achieve success, but wishes simply to stay on the market, is forced to constantly improve in accordance with the assumptions of the cycle. The authors of this paper believe that the cited features of modern markets are primarily associated with the development of ICT, in particular the Internet. The world in which the most important factor is information, in which, regardless of the physical location of the physical unit, actions are taken (as a result of identification, acquisition and use of information) in real time, naturally "accelerates". No limitations of time and space in terms of the physical life of the individual (person, company) in the world of information causes the apparent acceleration of life in the physical world.

This is because every physical action: by the enterprise or its employees, is the result of information. It is also a source of information affecting the actions of others. These activities, in turn, affect the enterprise, which thus verifies the effectiveness of its own functioning. It introduces corrective actions for improvement. Thus, information management should also be considered in the context of continuous improvement of the enterprise.

One of the most important conditions for the effectiveness of modern enterprises is flexibility, openness, and innovation. Flexibility refers to the ability and willingness to make changes, openness - the ability and willingness to identify and obtain information and knowledge, innovation of the ability and willingness to adapt the offer to the clients' needs and to adapt the management and functioning methods to the requirements of the markets. It should be noted here that innovation is the result of flexibility and openness. This is particularly true in terms of information and is primarily associated with information management in the world of information, which can be defined as information space.

3. Information Management in Enterprise-Customer Relations

Among the most important goals of modern enterprise management points to shaping and maintaining good relationships with the environment, including customers. This is due to the direct dependence of the competitive position on the clients' involvement in the exchange of goods and money, but also on their commitment to the exchange of information and knowledge. At the same time, sales-based activities can be described as final and related to the operational sphere.

The part that deals with the exchange of information and knowledge - strategic and occurring continuously⁴. Therefore, it should be stated that according to the authors, the key to staying on the market and improving the competitive position is the effectiveness of information management. This applies to the sphere of contacts with the environment and internal. At the same time, internal activity being a derivative of external information depends on external activity, including at the interface between the enterprise and the client (Lucia-Palacios *et al.*, 2020).

Each of the market participants is interested in satisfying his individual needs and expectations. Therefore, he conducts activities focused on obtaining specific values. When considering functioning within the information space, it should be emphasized that the clear division between suppliers and customers of values is blurring. Regarding information, each market participant is both a supplier and a customer. The location of the center of gravity on one of these functions is purely contractual and depends on the individual assessment of the entity (at the time of contact, relationship). The entity, which is the customer in the operational dimension, can be and most often is, at the same time the supplier in the strategic dimension (information). Each market participant is the customer interested in obtaining value and information. These two decide about his future behavior and actions taken. Voodall points to the diversity of operational and strategic benefits (Woodall, 2003).

Value is traditionally seen as the relationship between costs and the benefits achieved, the costs that are expressed in price (Iwińska-Knop, 2015). According to the authors, however, the immaterial dimension of the values obtained is of much greater importance. It can be considered in terms of information features (timeliness, verifiability) (Razvan, 2020), which are associated with a general feature - usability.

The customer for whom, in fact, the most important value is information can cooperate with the supplier. This cooperation is based on the exchange of information and knowledge. The key is willingness, ability, and openness to such exchange. Here, the feature of flexibility of the organization, but also as the employees that make up its structure, acquires special significance. An example of such relationships are prosumers for whom the received value is, among others, their own contentment, satisfaction, knowledge, and information (Törhönen *et al.*, 2019). The area of intangible benefits seems to be currently underestimated in business operations. The customer who is truly satisfied with relationships, is treated honestly, and his material and information needs are met, is willing to cooperate. He has and is interested in providing something much more valuable than financial means, i.e. information and knowledge. Thanks to them, the company

⁴Although, according to the authors, it is currently treated occasionally as an accompanying sale.

can improve its offer and way of functioning. From effectiveness and commitment to information management depends on the effectiveness of the organization on the market. Efficiency is understood as the ability to constantly adapt to market changes, which is the result of continuous improvement, which in turn is the result of: flexibility, openness, and innovation. The information dimension is particularly important as the primary dimension for the physical dimension.

The literature studies made it possible to formulate the following research question: Do information flows in the company's information space influence the improvement of management processes? Thus, the main hypothesis assumes that the processes of information exchange in the client-company relationship affect the management processes in the company. The verification of the main research hypothesis will be based on the verification of two specific hypotheses:

H1: The company's clients are willing to cooperate with the company only in the aspect of exchange of knowledge and information.

H2: There are significant dependencies between individual activities in the area of information management in the company.

The verification of accepted hypotheses was carried out using statistical dependence analysis using the frequency analysis and Pearson correlation coefficient.

4. Research Methodology

Study sample:

Based on a critical analysis of the available literature and own research, the concept of a study was developed to examine the relationship between enterprise activities and effects in the context of information management in the information space. The prepared study took the form of a questionnaire consisting of a research part and a metric. The survey questionnaire consisted of research questions and metric questions.

The first stage of the study was to conduct a pilot study among the participants in the study to identify any inaccuracies that could hinder the understanding of the questions contained by the respondents and clarify any ambiguities. The next step was to conduct a main study addressed to 360 people. Due to the use of the representative method in the study, efforts were made to minimize the sample size while maintaining the required accuracy and certainty of inference. The classic sampling scheme in the form of a formula was used to calculate the approximate size of the selected sample:

$$n = \frac{u_{\alpha}^2 p(1-p)N}{u_{\alpha}^2 p(1-p) + (N-1)d^2} = \frac{(1,64)^2 * 0,6 * 0,6 * 37800000}{(1,64)^2 * 0,6 * 0,6 + 37800000 * (0,5)^2} = 354$$

where:

α = level of significance (0,1-0,01),

u^2_α = the value acquired from the table of normal distribution for the adopted level of significance,

p – the structure index,

d – accepted level of the highest error

As is evident from the calculations, the minimum sample size, with the adopted confidence level $1-2 = 0.90$, and the accepted level of highest error $d = 6\%$, should be 354 questionnaires. Due to the fact that the study involved 360 questionnaires, it can be assumed that this condition has been met. In total, 357 survey questionnaires have been returned and all of them have been classified for further analysis.

Data collection:

In the main study the PAPI method (Paper and Pencil Interviewing) was used, which is the most common method for quantitative techniques. The survey took the form of an interview with a respondent who answered individual questions in the questionnaire and his responses were noted by the interviewer. This type of research is the most effective because of the obligation to provide reliable answers. The obtained data was transferred to an Excel spreadsheet, and then, using the Statistica 13 software, were further analyzed. However, before starting the analysis of the obtained test results, an analysis of the reliability of the measuring scale was carried out using the Alpha Cronbach statistics, which is most often used to measure the internal consistency or reliability of a psychometric tool. Alpha Cronbach's statistics are based on the correlation coefficients of all questionnaire questions with the overall score on this scale (Statistica 13). Alpha Cronbach's statistics calculated for all questions was 0.65, which means adequate coherence or reliability of the scale.

5. Data Analysis

Descriptive analysis:

As mentioned earlier, a total of 357 questionnaires were qualified for further research and analysis. Descriptive statistical results (Table 1) showed that in the structure of the respondents, more than $\frac{3}{4}$ of them was younger than 25 years (77%). Next, there were respondents between 26 and 40 years (19%), and the smallest group were people between 41 and 50 years (3%).

Table 1. *Descriptive analysis results*

	Frequency	%	Cumulative percent
Age			
Up to 25 years	276	77%	77%
26-40 years	69	19%	97%
41-50 years	11	3%	100%
Employment			
Working	144	41%	40%

Not working	212	59%	100%
Nature of employment *			
Owner/Co-owner	11	8%	8%
Employee	133	92%	100%
Employment Area *			
Production	38	26%	26%
Procurement	2	1%	28%
Distribution/Sale	15	10%	38%
Warehouse	9	6%	44%
Transport	4	3%	47%
Customer Service	51	35%	83%
Other	25	17%	100%

Note: * applies only to employed persons

Source: Own study.

More than half of the respondents are not working (59%), and among the remaining respondents who showed professional activity, the majority described themselves as employees (92%) and only 8% described themselves as the owner or co-owner of the company. The largest percentage of employees work in customer service (35%), production came second (26%) and employment areas third (17%), however, without indicating exact areas. The remaining respondents indicated areas such as distribution / sales (10%), warehouse (6%), transport (3%) and procurement (1%).

6. Research Results

In order to verify the first research hypothesis, frequency analyzes were conducted regarding the distribution of responses to the following issues:

- willingness to cooperate with the company only to exchange information and knowledge,
- willingness to provide information by customers affecting the creation of new products or improving the quality and functional features of existing products, improving management processes in the company,
- identifying the impact of information obtained from the client on improving the quality of service, improving management processes and improving the company's offer,
- the importance of tasks carried out in the company in relation to the client-company relationship and the impact of information disseminated by the company on the possibility of establishing cooperation with clients.

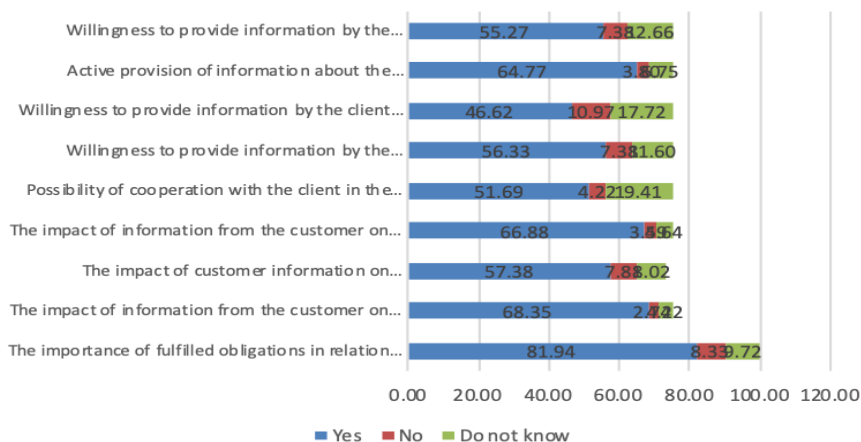
Based on the frequency analysis carried out, it can be stated that more than half of the respondents (51.69%) are willing to establish cooperation with the company only in the form of exchange of information and knowledge, also more than half of the respondents (56.33%) willingly provide information to the company that can be used in to create new products or to improve the quality or functional features of existing products.

Table 2. *The results of the frequency analysis in relation to the issues examined*

The importance of fulfilled obligations in relation to the company-client relationship			
	Number	Percent	Cumulative percent
Yes	118	81,94	81,94
No	12	8,33	90,27
Do not know	14	9,72	100
The impact of information from the customer on improving the company's offer			
	Number	Percent	Cumulative percent
Yes	324	68,35	68,35
No	13	2,74	71,09
Do not know	20	4,21	75,31
The impact of customer information on improving management in the company			
	Number	Percent	Cumulative percent
Yes	272	57,38	57,38
No	37	7,80	65,18
Do not know	38	8,01	73,20
The impact of information from the customer on improving the quality of service			
	Number	Percent	Cumulative percent
Yes	317	66,87	66,87
No	17	3,58	70,46
Do not know	22	4,64	75,10
Possibility of cooperation with the client in the form of exchange of information and knowledge			
	Number	Percent	Cumulative percent
Yes	245	51,68	51,68
No	20	4,21	55,90
Do not know	92	19,40	75,31
Active provision of information about the company to the environment influences customer purchasing decisions and motivates to cooperate			
	Number	Percent	Cumulative percent
Yes	307	64,76	64,76
No	18	3,79	68,56
Do not know	32	6,75	75,31
Willingness to provide information by the customer regarding the creation of new products, improvement of the quality and functional features of existing products			
	Number	Percent	Cumulative percent
Yes	267	56,32	56,32
No	35	7,38	63,71
Do not know	55	11,60	75,31
Willingness to provide information by the customer regarding the improvement of customer service processes			
	Number	Percent	Cumulative percent
Yes	262	55,27	55,27
No	35	7,38	62,65
Do not know	60	12,65	75,31
Willingness to provide information by the client regarding the improvement of management processes			
	Number	Percent	Cumulative percent
Yes	221	46,62	46,62
No	52	10,97	57,59
Do not know	84	17,72	75,31

Source: *Own study.*

Figure 1. The results of the frequency analysis regarding the distribution of responses



Source: Own study.

The distribution of answers to specific issues also indicates the belief of customers that sharing information and knowledge with the company will improve the quality of service (66.88%), improve management processes (57.38%) or improve the company's offers (68.35%). In addition, more than half (55.27%) of respondents also want to share information that relates to improving the quality of customer service processes.

However, while more than half of the respondents are convinced that sharing information and knowledge with the company will improve management processes, the desire to share information and knowledge just for this purpose was indicated by slightly less than half (46.62%) of the respondents. The last issue regarding the significance of the obligations carried out in relation to the company-customer relationship concerned only employees (144 people), and among them the overwhelming majority (81.94%) indicated that in their companies great importance is attached to the obligations they perform in relation to company-customer relationship. It was also examined what causes the client to establish cooperation with the company consisting in providing information and knowledge. Here, the highest indication was for the company to provide information to the environment (64.77%).

However, among the motivating factors themselves, the largest percentage (28.48%) of the respondents indicated that such a motivating factor are rebates for purchases offered by the company, for some (21.09%) of the respondents the monetary equivalent is equally important. However, 1/5 of respondents (20.25%) indicated that such a motivating factor for cooperation is satisfaction that opinions, knowledge and willingness to engage the respondent are appreciated by the company and lead, among others to create new products, improve the quality and

functional features of products already available, improve the service process or improve the management process. Therefore, the results presented confirm the first detailed hypothesis assuming that clients show willingness to cooperate with the company only in the aspect of exchange of information and knowledge, and show a strong belief that this kind of cooperation affects the areas of company management.

In order to verify the second detailed hypothesis, assuming the existence of significant relationships between individual activities in the area of information management in the company, the statistical analysis of the significance of the Pearson correlation coefficient was carried out. In the first step of the analysis, each issue was assigned (Table 3).

Table 3. Symbols assigned to specific issues

Issue	Symbol
Does the company indicate the importance of performed duties in relation to the company-client relationship in relation to the occupied position?	P1
Can the information provided by the client and cooperation with him have an impact on the improvement of the offer (introduction of new products, improvement of the quality and functional features of existing ones)?	P2
Can the information provided by the client contribute to improving management in the company?	P3
Can the information provided by the customer contribute to improving the quality of service processes?	P4
Is it possible for the company to cooperate with its external environment (people, business organizations, research units, etc.), including customers, which is not related to sales but only exchange of information and knowledge?	P5
Is active provision of information (about the company, the offer, its superiority over the competition, the advantages of cooperation, the ability to participate in creating new products and modifying already available, etc.), to the environment of the enterprise via the Internet (social networking sites, discussion groups, forums, etc.), press, television, radio, influences customer purchasing decisions and motivates to cooperate with the company?	P6
Would you be interested in providing the company information helpful in creating new products, or improving the quality and functional features of existing ones?	P7
Would you be interested in providing information to the company resulting in improved quality of customer service processes?	P8
Would you be interested in providing the company information enabling it to improve its management proces?	P9
What would be the motivating factor for you to cooperate with the company by providing its information, the use of which would allow you to: develop new products, improve existing ones, improve the customer service process, improve the management process (cooperation is not an obligation, it results from good will and is not troublesome)?	P10

Source: Own study.

Then, in order to present some significant relationships between individual activities, the relationship analysis was performed (Table 4).

Table 4. A correlation matrix for selected issues

Variables	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
P1		-0,09857	0,04802	0,28616	0,34953	0,12067	0,143499	-0,00300	0,11511	0,083613
P2	-0,09857		0,40369	0,15677	0,04187	0,19645	-0,00843	0,08278	0,10067	0,00819
P3	0,04802	0,40369		0,48330	0,24221	0,23778	-0,00560	0,29878	0,20135	0,04321
P4	0,28616	0,15677	0,48330		0,36673	0,23754	0,18515	0,30873	0,28154	-0,01706
P5	0,34953	0,04187	0,24221	0,36673		0,08538	0,33007	0,25097	0,26170	0,02685
P6	-0,007862	0,09346	-0,06123	0,05959	0,21779		0,20642	0,11254	0,20372	0,01195
P7	0,143499	-0,008436	-0,005606	0,185153	0,330074	-0,09999		0,50095	0,22480	-0,00794
P8	-0,003009	0,082788	0,298788	0,308733	0,250971	0,12856	0,500953		0,44339	0,10561
P9	0,115117	0,100677	0,201352	0,281549	0,261703	0,07733	0,224800	0,443397	1,000000	0,05495
P10	0,083613	0,008199	0,043218	-0,017066	0,026858	0,01266	-0,007947	0,105616	0,054958	

Source: Own study.

Obtained results made it possible to observe significant statistical correlations between the studied issues:

- in the company in which performed duties in relation to the company-customer relationship are of great importance, it is significantly more often believed that the information provided by the customer may contribute to improving the quality of service processes ($r=0,28$; $p<0,05$) and significantly more often it is believed that cooperation with clients is possible, which is not related to sales, but only exchange of information and knowledge ($r=0,34$; $p<0,05$);
- there is a significant relationship between the impact of customer information provided on the improvement of the offer and the improvement of management in the company ($r=0,40$; $p<0,05$), as well as the active dissemination of information by the company to the environment ($r=0,19$; $p<0,05$);
- there is a significant relationship between the client providing information contributing to management improvement in the company and the impact of this information on improving the offer ($r=0,40$; $p<0,05$), in addition, information to improve the quality of processes ($r=0,48$; $p<0,05$), the possibility of establishing cooperation based solely on the exchange of information and knowledge ($r=0,24$; $p<0,05$), active provision of information to the environment by the company ($r=0,23$; $p<0,05$), the level of customer interest in providing information contributing to the creation of new products, or improving the qualitative and functional features of existing ones ($r=0,29$; $p<0,05$) and improving the quality of customer service processes ($r=0,20$; $p<0,05$);
- respondents who indicated the possibility of establishing cooperation with the company only in the aspect of exchange of information and knowledge, significantly more often indicated that the information provided by the client may contribute to improving management in the company ($r=0,24$; $p<0,05$); improving the quality of service processes ($r=0,36$; $p<0,05$); active provision of information to the company's environment motivates to cooperate with the company ($r=0,21$; $p<0,05$); they would also be significantly more often interested in providing the company information helpful in creating new products, or improving the quality and functional features of existing ones ($r=0,33$; $p<0,05$); providing information to

companies that improve the quality of customer service processes ($r=0,25$; $p<0,05$) and providing the company information allowing to improve its management process ($r=0,26$; $p<0,05$);

- there is a significant relationship between the company's active provision of information and the impact of information obtained from customers on improving the offer ($r=0,19$, $p<0,05$); management in the company ($r=0,23$, $p<0,05$) and the possibility of establishing cooperation involving the exchange of information and knowledge ($r=0,23$; $p<0,05$);
- customers interested in providing information to the company that are helpful in creating new products, or improving the quality and functional features of existing ones consider significantly more often that the information provided by the customer may contribute to improving the quality of service processes ($r=0,18$, $p<0,05$); it is possible for the company to cooperate with its external environment, including clients, who are not related to sales but only exchange of information and knowledge ($r=0,33$; $p<0,05$) and active provision of information to the company's environment influences customer purchasing decisions and motivates to cooperate with the company ($r=0,20$; $p<0,05$). In addition, respondents significantly more often indicated their willingness to provide information to companies that improve the quality of customer service processes ($r=0,50$; $p<0,05$) and enabling the management process to be improved ($r=0,22$; $p<0,05$);
- customers interested in providing information to the company resulting in the improvement of the quality of customer service processes significantly more often thought that the information provided by the customer may contribute to improving management in the company ($r=0,29$; $p<0,05$), to improve the quality of service processes ($r=0,30$; $p<0,05$) and significantly more often allowed the possibility of cooperation between the company and clients, which involves the exchange of information and knowledge ($r=0,25$; $p<0,05$). In addition, they were significantly more often interested in providing information to the company, helpful in creating new products, or improving quality and functional features already existing ($r=0,50$; $p<0,05$) and providing the company information allowing to improve its management process ($r=0,44$; $p<0,05$).
- while respondents who were interested in providing information to the company that would allow to improve its management process, significantly more often believed that the information provided by the client could contribute to the improvement of company management ($r=0,20$, $p<0,05$), to improve the quality of service processes ($r=0,28$; $p<0,05$), it is possible for the company to cooperate with clients, which is not related to sales but only exchange of information and knowledge ($r=0,26$, $p<0,05$), active provision of information to the company's environment motivates to cooperate with the company ($r=0,20$; $p<0,05$). In addition, they were significantly more willing to provide the company with information helpful in creating new products, or improving quality and functional features of existing ones ($r=0,22$; $p<0,05$) or resulting in improved customer service processes ($r=0,44$; $p<0,05$).

The results obtained above allow for positive verification of the second detailed hypothesis assuming that there are significant relationships between individual activities in the area of information management in the company. Thus, it can be assumed that the main hypothesis has also been positively verified.

7. Conclusion

Information and knowledge, especially their management, play an especially important role in the functioning of enterprises in conditions of high volatility and uncertainty. Information has ceased to be just a factor which use allows achieving goals. The universality of access to information, its quantity, and the lack of significance of distances in the physical sense make it necessary to manage information not only within the structure of the company, but also outside. Coexistence and interaction with clients, both current and potential, must give the opportunity to obtain the desired information from each party. At the same time, the information activities of the organization outside should remain coherent and have a positive impact on the environment.

The topic discussed in the article is complex. Given the editing restrictions, it was not possible to exhaust it. According to the authors, further research is needed. They should concern e.g. what constitutes a real motivating factor for establishing cooperation and/or making a purchase. Is it a traditionally recognized price or information that the potential customer or partner reaches? According to the authors, information is gaining in importance. Research could also concern the essence of the world of information - space, its features, and conditions as an area in which, according to the authors, modern management takes place.

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