

THE DEVELOPMENT OF TECHNOLOGICAL SUPPORT ORGANIZATIONS AS AN INDICATOR OF MANAGEMENT EFFICIENCY

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Abstract:

The article is devoted to analyzing the need for managers to spend money on developing technological support for organizations to achieve strategic goals. The impact of technologies in various sectors of organizations' activity on the effectiveness of organizational systems is considered. The work examines the activity of Ukrainian profitable and non-profit organizations on the influence of the level of technologicalization of organizational processes on increasing the level of profit and the social effect of activity. The study considered the statistical data of the State Statistics Service of Ukraine for 2018, 2019, and 2021 according to the indicators Number of enterprises that have access to the internet and the number of employed who have access to the internet and Number of employed who have access to the internet. The given statistical data were quantitatively processed (summarized and compared). With the help of theoretical research methods (deduction and analysis) of the obtained results, it was found that the organization's technological development helps to increase the organization's profitability and the non-profit organization's social effect. The practical value of the article lies in the visual representation of the dependence between the necessity of spending on the technological development of managers of profitable and non-profit organizations and the effectiveness of these organizations.

Key words: *effective management, humanistic management, manager, technological support, technologies*

INTRODUCTION

Effective management is the manager's main task, who strives for the development and effectiveness of the managed system. Different approaches of scientists to the definition of effective management indicate the multidimensionality of this concept.

Information technology will be interlaced with organizational knowledge management strategies and processes [1, 2, 3]. The flow of information in the organization is continuous and has a different nature (legal regulations, accounting data, changes in personnel processes, etc.). All this information needs systematization, which is provided by technological means.

The use of IT technologies to increase the level of efficiency of management decision-making in the organization [4]. Decision-making by the manager is a key function in management, and the implementation of this function can be improved through technology.

Technology comprises a crucial element of the structural dimension needed to mobilize social capital for the creation of new knowledge [5]. The social component of the organization is a tool of the manager in the

implementation of the mission of the organizational system, therefore, the use of technologies in this part is necessary to achieve the goals.

One of the indicators of effective management can be considered the level of technological support of management processes in organizations.

For business and science, technical progress is both evident and comprehensible. The need for continuous development and improvement of technological solutions, which by definition are intended to streamline and optimize industry and service processes, is strongly emphasized [6]. Modern organizations can only work effectively with the use of technological means.

The use of technologies in all organizational processes, and especially in managerial ones, is necessary for the effectiveness of the organizational system [7]. The manager's focus on the use of the latest, constantly improving technologies indicates the development and success of the organization as a whole.

The introduction of technologies in the organization has a positive effect on its development and ensures the formation of humanistic approaches in management [8,9].

Technological support of organizational processes is a fundamental and integral part of the effective operation of organizations.

LITERATURE REVIEW

The need to use technologies in the administrative processes of the organization to increase the level of efficiency of its activities is actively studied by scientists. It is an urgent issue due to the constant development of technological means. After analyzing the scientific studies indexed in the Scopus database using the keywords "management" and "technology" for 2019-2023 with the most significant citations, a list of scientists dealing with the implementation and use of technologies in the management of the organization was formed. The results are presented in Figure 1.

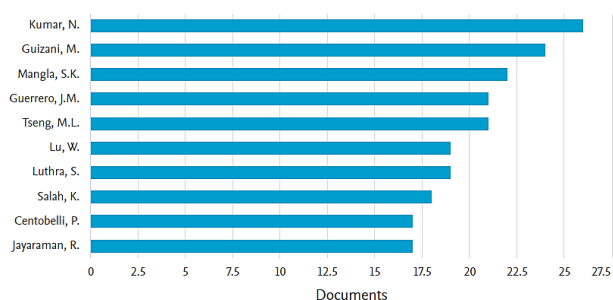


Fig. 1 List of authors studying issues related to using technologies in management

Source: developed by the author using Scopus Database.

Scientists considered the use of technologies in management activities from such angles – as data protection and sustainable development of organizations [10], use of artificial intelligence in management [11], the impact of technology on developing economies [12], digitization of processes in the infrastructure [13], the use of technologies in conditions of uncertainty [14], implementation of technological processes in decision-making [15], technological support of supply processes in organizations [16], technological approaches in creating business models [17].

It isn't easy to imagine the modern world without technology. The technological development of various organizational processes requires constant attention from scientists studying this issue. Constant changes and improvements in technological means [18] affect various spheres of the social life of every person. Digitization of the economy determines the development of the economic sphere of activity of organizations and ensures a high standard of living for every member of society [19]. Therefore, the organization's technological level of providing processes affects its effectiveness. However, it is important to remember about the ethical side of technological development. Ethical reflection should constantly accompany technological processes [20].

RESULTS OF RESEARCH

The goal of the work is to determine the necessity of the expenses of profitable and non-profit organizations for the technological development of activities, which is an

important element in the formation of the financial efficiency of a good organization and the social effect of the activity of a non-profit organization.

The work examines three Ukrainian organizations among them:

- two are profit-making, their spheres of activity are food trade and production of drinking water;
- one is a non-profit public organization, and the result of its activity is the level of social effect for society, the mission of the activity is to satisfy the economic, social, and other needs of the members of the public organization based on a combination of their personal and collective interests.

Table 1 summarizes the main characteristics of the organizations studied in the article.

Table 1
Characteristics of the studied organizations

No.	Field of activity	Number of employees	Activity result
1.	Trade	50	Profit
2.	Production of water	40	Profit
3.	NGO	10	Social effect

The work uses two types of scientific research methodology [21]. The quantitative processing of statistical data, namely comparison, and generalization, was used to identify trends in the current economic processes in Ukrainian organizations. Theoretical methods of scientific research, such as deduction and analysis, are used to argue the need to bear the costs of profitable and non-profit organizations for the technological development of the organizational system. The tabular modeling method was used to visualize the research results.

According to general data from the State Statistics Service of Ukraine for 2018, 2019, and 2021, Number of enterprises which have access to the internet and the number of employed who have access to the internet and Number of employed who have access to the internet was increasing [22]. The statistical results of this study are presented in Table 2.

As can be seen from Table 2, the trend of technology implementation in Ukrainian organizations has an increasing vector. The number of employees using the Internet is growing every year. The process of digitalization in Ukrainian organizations ensures the development of the economy [12, 13], which is a relevant direction in modern realities. Transformations taking place in modern organizations require the adoption of effective management decisions [15] that can ensure a high level of organizational activity.

The organizations proposed for analysis in the article conduct their activities in the areas that provide the basic needs of Ukrainian society – the sale of food products, the production of drinking water, and the satisfaction of economic, social, and other needs of members of the public organization based on a combination of their personal and collective interests. The results of the activities of these organizations are profit and social impact.

Table 2

Number of enterprises which have access to the internet and the number of employed who have access to the internet by type of economic activity, with a breakdown by number of employed in 2018, 2019, 2021

Number of enterprises which have access to the internet					Number of employed who have access to the internet				
Year			Change		Year			Change	
2018	2019	2021	2018-2019	2019-2021	2018	2019	2021	2018-2019	2019-2021
43303	43785	44508	+482	+723	1064745	1090035	1133069	+25290	+43034

Source: developed by the author using data from the State Statistics Service of Ukraine.

Because for business profit is revenue realized in excess of costs incurred [23] then it can be stated that expenses for the organization's development are a necessary condition for the formation of the effectiveness of its activities. A non-profit public organization aims to create a social effect as a result of its activities and improve the life of society in various aspects [24]. In the proposed public organization, the dynamics of payment of membership fees are a material measure of social effect.

Four areas of Spent on technological support are defined: 1-2. Updating computer software and Software updates, Properties that determine the effective structure of dynamic updating include four assessment criteria [25]:

- Flexibility – any part of a working system should be updated without downtime;
- Reliability – the system should minimize the risk of errors and crashes due to updates, using automatic update correctness tools;
- Ease of use – the upgrade system should be easy to use;
- Low overhead costs – You should make the program available for updating to affect its performance as little as possible.

The performance characteristics of computer and software updates of the organization must meet the described criteria for high-quality work.

3. System administrator salary must meet payment standards in the country and be fair [26] and competitive to exclude the emergence of staff turnover in organizations.

4. Training of personnel to work with technologies. The constant development of modern technologies requires continuous training of personnel [27, 28] for effective use of technological means in professional activities. Staff familiar with the theoretical foundations and endowed with practical skills in using modern technologies is a powerful tool for the manager to shape the effectiveness of the managed organization.

Table 3 shows organizations' aggregated data for 2018-2022 on the profit level and social impact of organizations and costs for technological support.

Table 3

Quantitative performance indicators of the studied organizations

Profit	Spent on technological support					Total
	Update of computer	Software updates	System administrator salary	Training of personnel to work with technologies		
Trade (thousand hryvnias)						
2018	720.0	117.0	53.0	36.0	24.0	230.0
2019	814.0	124.0	57.0	42.0	30.0	253.0
2020	843.0	127.0	59.0	48.0	36.0	270.0
2021	854.0	132.0	63.0	54.0	42.0	291.0
2022	612.0	86.0	31.0	60.0	24.0	201.0
Production (thousand hryvnias)						
2018	886.0	132.0	64.0	48.0	18.0	262.0
2019	913.0	137.0	66.0	54.0	24.0	281.0
2020	944.0	141.0	71.0	60.0	30.0	302.0
2021	970.0	145.0	78.0	66.0	36.0	325.0
2022	511.0	72.0	30.0	72.0	12.0	186.0
Dynamics of payment of membership fees	Spent on technological support					Total
	Updating computer software	Software updates	System administrator salary	Training of personnel to work with technologies		
NGO (thousand hryvnias)						
2018	13.0	0	0	0	0	0
2019	12.7	0	0	0	0	0
2020	17.0	2.0	0.5	0.5	0.5	3.5
2021	17.8	2.2	0.7	0.7	0.7	4.3
2022	18.8	2.5	1	1	1	5.5

As can be seen from Table 3, there is a trend of increasing profits for the trading organization, except for 2022 (this is due to the military actions in Ukraine). At the same time, the increase in costs for the organization's technological development helps to increase the enterprise's financial results.

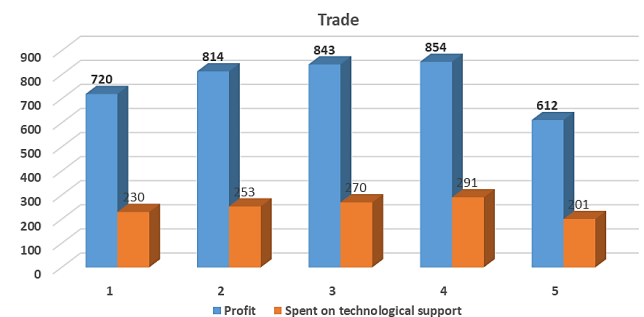


Fig. 2 The relationship between the profit of a trading organization and the costs of technological development of organizational processes

In Fig. 2 shows the results of profit and cost calculations for the technological development of a trade organization.

According to the data in Table 3, it can be seen that the production enterprise also has an increase in financial results during 2018-2021 (in 2022, there is a decrease in profit due to military actions in Ukrainian society) and an increase in costs for the technological development of the organization has a positive effect on the financial results of the organization.

In Fig. 3 shows the results of the calculations of profit and costs for the technological development of the production organization.

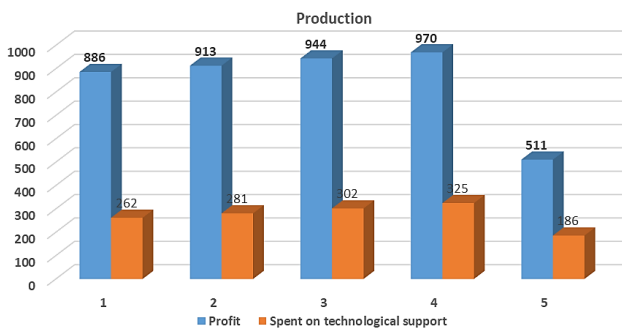


Fig. 3 The relationship between the profit of the production organization and the costs of the technological development of organizational processes

As for the non-profit public organization, according to Table 3, it can be seen that in 2018 and 2019, funds were not spent on the technological support of the organizational system, and as a result, the profit decreased. In 2020, the head of the public organization will be changed through democratic elections. The new manager, aiming to develop the managed system, invests in the organization's technological security. The consequence of such actions is an increase in the social effect on the members of the public organization, and the dynamics of the payment of membership fees, which form the non-profit organization's budget, increases.

In Fig. 4 visualizes the results of the calculations of the dynamics of the payment of membership fees and expenses for the technological development of a non-profit public organization.

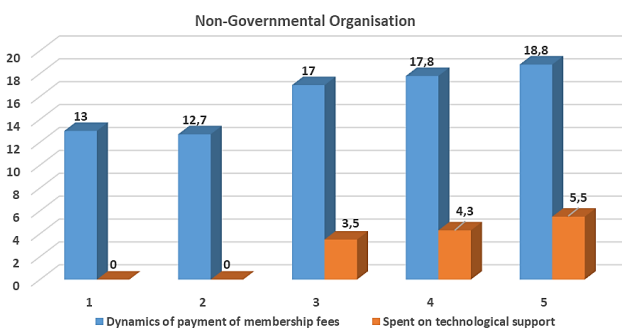


Fig. 4 The relationship between the dynamics of the payment of membership fees of a public organization and the costs of technological development

The results of the study, presented in Fig. 2, Fig. 3, and Fig. 4, indicate the influence of the development of technological support in organizations on increasing the

efficiency of the results of its activities - increasing the level of profit and social effect.

The use of technologies in modern organizations is a critical element in forming an effective management system [29]. The use of technologies in management activities and the performance of current tasks by employees optimize the organization's activities [30, 31, 32] and indicate the effectiveness of the manager's activities. The effectiveness of management is a multi-component concept [33], and, as can be seen from the results of the presented study, the organization's technological development is an element of the effectiveness of management activities.

CONCLUSIONS

Global modern technological development is an undeniable part of every person's public and private life. Using technologies in professional activities can improve work efficiency and raise the standard of living in various spheres of people's life. Economic development at various levels is possible under the condition of implementation and constant updating of technological means of all processes of organizational systems.

Using the latest technological means in organizations requires certain costs for implementing, maintaining, updating, and training personnel to use such means. Such costs are necessary for further improvement of the results of activities in organizations. Accordingly, with the high performance of organizations, the manager is effective in his activities. The desire of an effective manager for high performance in the work of the managed system is manifested in the desire to understand the modern world and respond to its challenges. Technological development is a tool for facilitating work in various processes in the organization and optimizing the activities of employees.

The results of the conducted research indicate the need for spending on the technological development of organizations to achieve both financial and social effects. The analysis of the Ukrainian organizations considered in the proposed work makes it possible to see the positive impact of the introduction and development of process technology on increasing business profits and the social effect of non-profit organizations. Using technological means in financial and non-financial organizations ensures the formation of high quantitative and qualitative job requirements. The manager who pays attention to the technological development of the managed organization is a modern manager, and the costs of technical support of the organization are one of the indicators of managerial efficiency.

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