



IT Effect Assessment for Non-profit Organization

Svetlana E. Vecherskaya

Abstract: *The article is devoted to assessing the effect of the implementation of information technologies in non-profit organizations. The purpose of the assessment is to evaluate the effect of IT implementation and its impact on key performance indicators of an organization. The indicators characterizing the results of the organization's activities in accordance with the State Assignment and the results of commercial activities were used as the key performance indicators. For federal state budget NPOs, it has been shown that a positive IT effect for auxiliary business processes does not directly ensure positive performance indicators for the core business processes. Hidden effects of the use of IT were assessed by changes of the indicators of the core business processes. Performance indicators characterizing the results of commercial activities may demonstrate a negative effect. Understanding the specifics of non-profit organizations, as well as metrics and performance parameters characterizing the effectiveness of such organizations, is important to ensure a correct approach to the digitalization of business processes and their performance management.*

Keywords: *efficiency, IT-effect, non-profit organization, performance indicators.*

I. INTRODUCTION

The dynamics of growth of the non-profit sector in developed economies has consistently demonstrated an increase of the share of non-profit enterprises and organizations in the distribution of the national product. The inflow of investments into this sphere is constantly growing, both as a result of an increase in budget investments, and as a result of attracting private financing. Financing growth requires more and more serious management of borrowed funds. Herewith an effective management is one most important task for non-profit sector, as for commercial organizations. The most important feature of the non-commercial, so-called "third sector" in Russia is its significant lag behind the "third sector" in developed economies. According to various information sources, the share of non-profit organizations, or NPOs, in GDP in Russia is about 1%, which is 5-7 times lower than that in Western Europe and North America. The share of people employed in the Russian non-profit sector is also about 7 times lower than

in developed economies. However, this lag quite quickly begins to decrease. The most important for the state are socially-oriented non-profit organizations. Their share in Russia is only about 15%, while in Europe and America - up to 70% [1]. In Russia, a state program has been developed to support NPOs, which provides for an increase in financing socially oriented organizations. The number of people employed in government institutions and municipal authorities, as well as those employed in the provision of public services is growing at a fast pace. So, the number of MFC (multifunctional centers for provision of public and municipal services) personnel in some regions is growing by more than 100% per year. The vast majority of developments in the field of effective management relate to the field of commercial entrepreneurship, and it is the commercial sector that offers the best practices of systems and methodologies for managing performance and optimizing management. Information and technological management tools are widely used, such as business performance management systems (BPM), corporate management systems (ERP). For NPOs, this scope of management has not yet been sufficiently developed and requires a careful study of its own approaches.

The implementation of information technology in the management of the organization should be carried out on the basis of a serious analysis of the effectiveness of the implemented technology. Evaluation of the IT effect involves determining the ratio of the result obtained during the implementation of an information technology or an information system, or information system to the costs of introducing and using technology [2, 3].

Despite the widespread expansion of the scope of the application of information technologies, the effect of their implementation is not always clearly positive. In most cases, the goal of IT implementation is to support and to increase the effectiveness of auxiliary business processes. It is assumed that indirectly this should lead to an increase in the efficiency of the core business processes, i.e. profit generating business processes. Accordingly, the hidden effects of the use of IT can be assessed by changes in the core business processes that are the sources of such obvious effects as an increase in revenue, quality improvement, and cost reduction. Thus, to evaluate the IT effect, it is appropriate to use key performance indicators of the operational activity of an enterprise or organization. The task, however, is more complicated for a non-profit organization.

II. FORMS AND TASKS OF NPOS

The main problem of evaluating the performance management of NPO, in particular the implementation of IT in organizations of this form,

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is the question of what exactly is considered a performance result for a non-profit organization.

In the Civil Code of the Russian Federation, non-profit organizations are defined as organizations that do not pursue profit-making as the main goal of their activities [4]. The main forms of non-profit organizations are determined by the Civil Code of the Russian Federation [5] and the Federal Law "On Non-Profit Organizations" [6]. Most organizations, with the exception of private foundations and professional associations, have budget funding as part of their funding. Educational, scientific and cultural institutions often also receive grant funding. Unions and public organizations, including foundations, form their income through donations. Despite the fact that the feature of enterprises and organizations of the non-profit sector is that their activities do not pursue a commercial result, it is known that many of them are engaged in, inter alia, commercial activities. Such activities may be in addition to the core one, or a part of the services offered by non-profit organizations are paid. In accordance with the classification and specifics of the distribution of funds, among non-profit organizations, one can distinguish those for which the main criteria for the effectiveness of the activity will be qualitative parameters, and others, the result of the activity is expressed in quantitative parameters. Key performance indicators of an organization are usually determined by target tasks documents of higher bodies to which NPOs are subordinate. So for state budget organizations such a document will become a State Assignment. The tasks of trade unions or professional associations are determined by documents issued by the highest advisory bodies of these NPOs, for example, annual meetings. In order to assess the effectiveness of NPO activities, the qualitative characteristics of activities are conveniently expressed using quantitative indicators.

Management approaches common to commercial activities can be applied if the task is to make a profit, minimize costs, etc. In other cases, the tasks that are determined by the state or a municipality (depending on the source of financing) will be crucial for the selection of criteria for evaluating the management result. The tasks of NPOs determined by the state are usually formulated as a State Assignment and may contain quantitative and qualitative parameters. For many NPOs, one of the basic indicators of the result of activity is audience coverage, or the number of appeals to NPOs. In the State Assignment, this indicator, as a rule, appears as absolute value, i.e. not related to the cost of achieving the indicator. Information technologies today are becoming one most effective factor in attracting a potential audience, primarily due to access to the network information space, as well as due to the improvement of the quality of auxiliary business processes of the organization related to information processing. For the purposes of this study, we consider two of the existing types of NPOs. Both of them are characterized by considerable budget financing, as well as the presence of a commercial component in the activity. At the same time, the results of the activities of the organizations under consideration differ significantly in the profitability.

III. PERFORMANCE ASSESSMENT

To ensure the performance management, it is first necessary to decide what will be considered effective for a particular type of organization. In other words, it is important

to understand what efficiency metrics and indicators of NPO are and how they are influenced by any factor of management or innovation.

It was shown that performance management of a non-profit organization involves the development of a system of key performance indicators (KPIs), which includes both quantitative parameters of management and a number of qualitative parameters that are digitized using some rating systems. Based on the analysis of the organization tasks and goals, it was shown that KPIs should meet the following requirements: to be strategically significant, to be operationally executable by employees of the organization, to be quantitatively measurable. Indicators with a strong dependence on external conditions, it is reasonable to consider as KPIs of costs. The performance indicators defining the work results of employees and of the organization as a whole are the KPIs of the result. Time dependent indicators characterize the internal productivity [7]. Note that the organization considered in pays special attention to the factor of digitalization of the processes of organizing operational activities. A similar approach can be observed in many NPOs. Thus, increasing the efficiency of health care facilities is largely associated with the implementation of electronic registration systems (EMIAS [8]). Online registration systems are widely implemented by various government organizations related to the non-profit sphere - the Russian Forestry Agency (EGAISLES [9].), The Ministry of Culture (EGAIS MUSEI-3 [10]). Efficiency is perceived mostly as audience coverage expansion. However, the implementation of information technologies and management systems should be justified by the effectiveness of the implementation of information technologies, the result of their implementation, reflected in the overall results of the activities of NPOs, including the commercial component.

IV. ANALYSIS OF PERFORMANCE MANAGEMENT PARAMETERS OF NPOS

As examples for consideration, two Russian NPOs were selected, which at the same time are quite typical, moreover, organizations of this type can also be found in other national economies. Consider the IT effect for management of NPOs in cultural and educational institutions. The purpose of the assessment is to evaluate the effect of IT implementation and its impact on key performance indicators of an organization. Both organizations under consideration carry out their activities in accordance with the State Assignment. The State Assignment defines the main tasks and goals of the organization as well as the criteria for assessing their fulfillment. Both organizations perform their activity in the form of federal state budget institutions. The similarity of the organizations in consideration is also that financial resources for their maintenance are allocated from the state budget, and besides that, organizations perform commercial activities by providing paid services. The development strategy of both organizations involves an expansion of the use of information technology and presence in the web. The sets of performance indicators used by organizations to measure their performance include various criteria.

The most important among them, from the point of view of fulfilling the State Assignment, are parameters characterizing the coverage of potential customer audience. The indicators characterizing the results of the organization's activities in accordance with the State Assignment and the results of commercial activities (audience coverage, volume of work performed, income from activities) were used as the key performance indicators. Since the implementation of information technology is considered as the most important catalyst for expanding the customer audience, it is of interest to analyze the relationship between audience coverage and IT effect. It is hardly possible to identify data on the cost of ownership of information systems and technologies in the total amount of expenses of organizations under consideration. Therefore, we will analyze the IT effect, based on the assumption that the cost of implementing and maintaining IT in the considered time diapason is a constant. In this case, it is enough to assess the dynamics of the resulting effect according to the relevant performance parameters of the organization, as a consequence of the implementation of information systems of technologies. The Tretyakov Gallery is one of the most dynamically developing cultural institutions (website [11]). The attractiveness of the museum for visitors is determined both by the richest collection of Russian art from icon painting to contemporary art, and by the format of events organized (thematic exhibitions, schools, concerts, shows, etc.). About 5 years ago, the museum drastically changed management approaches, in particular, began the large-scale implementation of information technology. An important feature of this period is the holding of numerous exhibitions that attract a huge number of visitors and significantly increase museum revenues. The growing popularity and too many visitors seeking to get to the Tretyakov Gallery exhibitions lead to the fact that some viewers left the "real" museum space for the virtual. The Figure 1 shows that the growth of the museum's audience in social media and web significantly exceeds the increase in the number of museum visitors [12, 13].

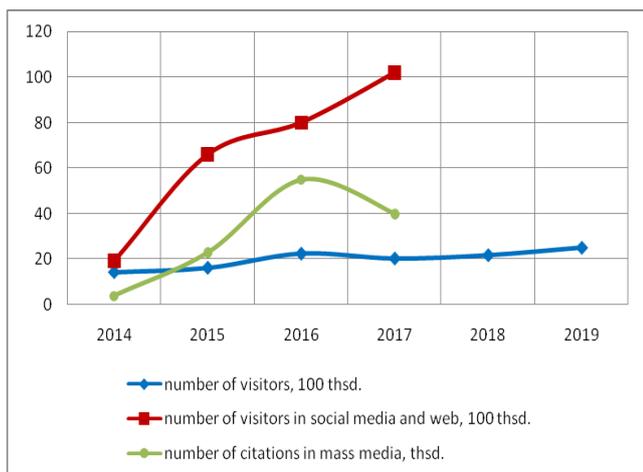


Fig. 1. Number of visitors of the museum in real and virtual space.

If we evaluate the actual IT effect, or the effectiveness of the implementation of information technology as a non-profit conversion, then a positive effect is obvious. Note that in the field of informatics, especially in network technologies, in contrast to traditional sales technologies, the conversion

should be understood as the converting a visit of a potential customer to the information space (contact touch) into any action, for example, browsing an exhibition clip on a website, not necessarily into a purchase [14, 15].

Sales of tickets, souvenirs and additional services to museum visitors provide a considered amount of museum revenue. From the point of view of fulfilling the State Assignment, as well as from the point of view of the expected volumes of revenue from commercial activities, the departure of the audience into the virtual space should be considered rather as a negative development performance factor. Raising funds, in addition to the budgetary financing, is one of the most important indicators of the performance of the museum. The Tretyakov Gallery reports on the growth of this indicator (Figure 2).

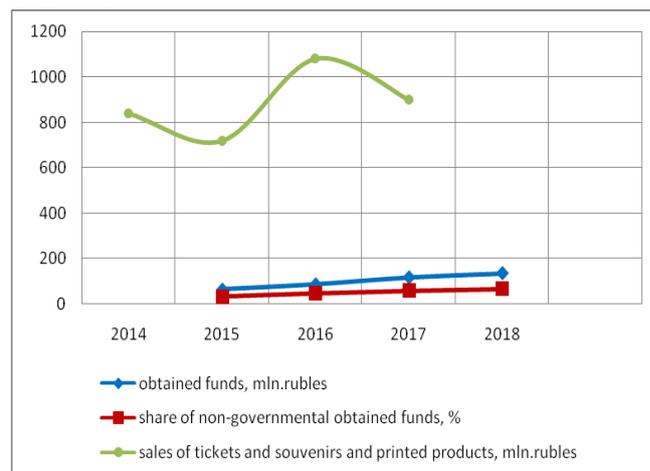


Fig. 2. Sales and obtained funds of the museum [16, 17].

Non-budgetary revenues of the museum are growing. However, an estimate of the share of non-state (attracted) funds in the total budget of the museum shows a slightly less rapid growth. This means that the income from commercial activities still does not provide a significant increase in the indicators of commercial performance of the organization. Note, this is despite the fact that the cost of a ticket to the museum is quite high - 500 rubles, or 1.2% of the average monthly salary in Russia. Entering the virtual space on the one hand has a clearly positive result - the coverage of an audience that has a need to get acquainted with museum exhibits and is not always able to do this on a paid basis increases. Thus, the IT effect should be considered positive from the point of view of the mission of the museum. At the same time, performance indicators, determined by the results of commercial activity, are more likely to indicate a negative effect.

The effect of the implementation of information technology support in NPO in the field of intellectual property is ambiguously positive. The Federal Institute of Industrial Property of the Patent Office of the Russian Federation (FIPS) performs unique functions of registering intellectual property and issuing certificates and patents (website [18]). FIPS works in accordance with the State Assignment and is financed from the budget. Besides that, the services provided by FIPS are paid: registration of an application and the issuance of a patent or certificate require payment of a fee, the provision of information is also partially paid.

The sphere of intellectual property is strictly regulated. The implementation of any new technologies in business processes should not change the very essence of the procedures provided for by patent law. The purpose of the implementation of information technology is, first of all, to increase the effectiveness of the organization's auxiliary business processes. In the past few years, FIPS has sought to increase the volume of processing of patent documents in electronic form. Figure 3 shows the dynamics of changes in the main criteria for evaluating the FIPS performance (number of applications registered and the average time of the application processing) and the time-comparable dynamics of the presence of potential customers in the FIPS virtual space. Surprising is the sharp decline in number of page views. It can be assumed that in 2016, the technique of counting views was changed changing the calculation approach of the click on the links.

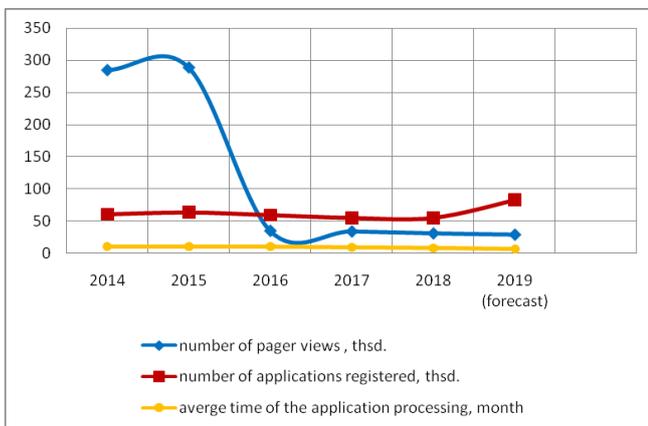


Fig. 3. Main performance indicators of FIPS versus IT parameter (from data of [19])

More important is the following. Prior to improving the FIPS information system, applications for an invention, as well as the entire document management process for their consideration, were conducted in paper form. In the period under review, it became possible to submit applications through a personal account on the organization's website. The recorded number of views includes views related to the document flow on the application. In parallel with the development of IT approaches in the organization, such an important parameter as the average application processing time really shows positive dynamics. However, this does not directly lead to an increase in the number of registered applications, which is much more important in terms of financial performance indicators (Figure 4). Thus, the expansion and facilitation of information access to FIPS services does not lead directly to the expected increase in revenue from the number of registered applications.

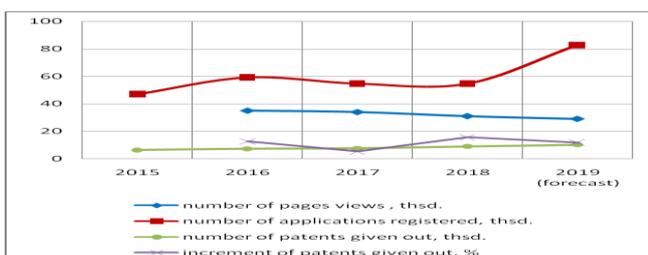


Fig. 4. Dynamics of performance indicators of FIPS.

Of course, invention and patenting are associated with creative processes that do not obey themselves to strict regulations and do not always correlate directly with any macroeconomic factors. As noted in the paper [7], a feature of federal budgetary institutions is the fact that they perform special, often unique functions and are not involved in the competition. Therefore, some KPIs typical for market enterprises will not be applicable to the evaluation of their activities – i.e. parameters characterizing the success of competition. The greatest difficulty in building a system of criteria for evaluating the performance of such organizations is sensitivity to environmental factors. Somehow, the demand for the services offered by the registration organizations depends on the market conjuncture, but also on individual life conditions and motives of applicants, and is even hardly predictable. The fundamental difference between the considered NPOs is that the P&L balance of the first organization is positive, and of that of the second one is negative. The Tretyakov Gallery, in general, earns more than it spends and provides revenues to the budget. FIPS balance is negative - state investments in the organization's activities are superior to income from its activities [20]. It is almost impossible to pick out the IT component in the total result of the activities of NPOs, since information technologies affect it only indirectly. The implementation of IT does not always reduce such an important efficiency parameter as labor productivity. Obviously, despite FIPS loss-making, it would be unreasonable to "thrift" on the implementation of IT in this organization, for example, by continuing to conduct exclusively or mainly paper document management. However, it increases the expenditure and does not lead to an increase in the resulting financial indicators of NPOs.

V. CONCLUSION

Federal state budget non-profit organizations were considered as examples of NPOs, which combine non-profit core activities with commercial activities. For both of them, a wide use of IT is important both to increase their performance as to reach a better the audience coverage. The indicators characterizing the results of the organization's activities in accordance with the State Assignment and the results of commercial activities were used as the key performance indicators.

It has been shown that a positive IT effect for auxiliary business processes does not always directly ensure positive performance indicators for the core business processes. Hidden effects of the use of IT can be assessed by changes in the indicators of the core business processes. Information technologies affect the overall activity performance mainly indirectly. Meanwhile performance indicators characterizing the results of commercial activities may demonstrate a negative effect.

The considered examples generally quite clearly demonstrate the absence of direct positive economic effects from the implementation of information technologies in NPOs. Efficiency and performance criteria depend on the type and tasks of a particular non-profit field of activity or a specific organization. For NPOs that are state subordinated, the evaluating of the indicators of the fulfillment of the State Assignment is mandatory.

Accordingly, qualitative performance indicators are important, and the implementation of information technology does improve these indicators.

However, in the management of any organization or enterprise, it is important to correlate the result with the costs of achieving this result. Auxiliary business processes should be considered the main points of the “application of force” and evaluation of the IT effect. For auxiliary business processes, positive conversions will indicate a positive IT effect, while for the core business processes, the positive dynamics of quality performance indicators is not always directly determined by the IT effect. This is important for understanding the specifics of the impact of IT on company overall performance. A correct assessment of the IT effect allows to correctly perceive the results of the organization, in particular, it helps to make decisions on the appropriateness and amount of financing the organization from the state or municipal budget or from any attracted sources.

Understanding the specifics of the activities of a non-profit organization and metrics characterizing the performance and efficiency of the organization determines the choice of special performance management algorithms that take into account the particularity of business processes of non-profit sectors. Evaluation of the impact of any innovative technology or approach, for example, the introduction of IT in a non-profit organization, on the metrics characterizing the performance of this organization is important for solving the problems of the next level of management, namely, optimization of management and performance management.

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