



Digital Platforms as a Tool for the Transformation of Strategic Consulting in Public Administration

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Abstract

The article considers the main aspects of the use of digital platforms as a tool for the transformation of strategic consulting in public administration. The study substantiates the feasibility of using the results of consulting activities in the implementation of strategic objectives by the executive authorities at any level of government. The ways and methods of organizing consulting activities on the basis of digital platforms

for the purpose of informational and analytical support of management technologies of public administration and civil service reform analyzed. Based on the results of the study, a model of using consulting services in the public administration system was developed. The criteria of efficiency of realization project management consulting in the public sector, based on digital platforms highlighted.

Keywords: Digitalization, Digital platforms, Strategic consulting, Public administration.

Introduction

The transformation of public administration, which is taking place in accordance with technological changes and modern challenges of the modern economy, aimed at creating a new quality of public administration and civil service. The key priorities of such transformations are: digitalization as the latest concept of the functioning of the public administration system; introduction of the latest models of process and data management; creation of a system of public administration and civil service on the principles of manufacturability, normativeness, with a cultural basis of development; formation of the latest system of organization and functioning of public authorities, based on the integration and digitalization of processes, with the introduction of advanced technologies (unified system of data collection, processing and storage; digital infrastructure; automated decision-making system, etc.); transition to personalized indicators for measuring the living standards of citizens and the development of sectors of the economy as key indicators of the quality and effectiveness of public administration and civil service.

Qualitative changes in public administration and civil service based on the digital transformation, which, in essence, is a profound reorganization, reengineering of all processes. The introduction of digital tools is a mechanism for performing processes, which leads to a significant improvement in their quality characteristics (execution time, optimization, efficiency and effectiveness of services provided), as well as the emergence of new qualities and properties of such processes (automated decision making, etc.). The idea of creating a system of public administration of increased comfort - obtaining quality services for taxpayers - takes the public sector to a new level.

Unfortunately, the digital infrastructure in public services formed on the basis of existing organizational structures, manuals and processes. Uninterrupted interaction of users of public services, as in the private sector, has not yet been formed, as interaction on the Internet takes place on existing, outdated systems. Quite often there is a lack of integrity of levels of government, departments and organizations, which requires systemic changes on a new basic basis.

Such a problem as the formation of a system of public administration focused on performance, as a principle of comprehensive quality management, acquires special significance.

The basis of the concept of results-based management (RBM) is the orientation of all actions and the use of resources to achieve clearly defined and sound results. RBM provides transparency and accountability, and proper planning, monitoring and evaluation significantly increase the efficiency of government agencies. Implementation of RBM mechanisms provides: increasing the efficiency and effectiveness of government agencies; ensuring the proper quality of management decisions on the allocation and use of resources and budgeting; increasing the transparency and accountability of public sector institutions and services; achieving reasonable savings of budget resources.

To develop the potential of public administration, specific measures provided:

- introduction of tools for strategic planning and budgeting, as well as monitoring and control of performance;
- implementation of a process approach in the implementation of functions and tasks and the provision of services of appropriate quality;
- introduction of the principles of continuous improvement of the quality of services in the culture of state institutions.

To ensure the implementation of these tasks, the issues of forming the sector of strategic consulting in public administration, as an intellectual and analytical center for the implementation of strategic tasks by the executive authorities at any level of government are relevant. The study based on the concept of the information society, which highlights a key role in the management of the state and the business of information resources. Consulting activity generates such information intellectual resources that acquire special value in the period of transformational changes in the public administration sector. Information resources are knowledge, professional competencies (specially prepared by people) for social or commercial use in society, as well as information on appropriate media. The transition to platform mechanisms in the field of consulting services will affect the methods and quality of analytical support for the strategic transformation of the public administration sector. Thus, the issue of introducing strategic consulting tools in public administration in the context of active use of digital platforms is relevant. Such research is especially important in the period of transformational changes in the public administration sector.

The hypothesis of this study: to increase the efficiency of public institutions it is necessary to form in the system of public administration of the consulting services sector, based on digital platforms as a tool for the transformation of strategic consulting in public administration.

Literature Review

Public sector reform has driven by the need to increase the efficiency and effectiveness of public administration. This can achieved, in part, through the wider use of non-standard digital services.

Experience, as well as research by scholars, shows that the public sector, due to bureaucratic obstacles, does not keep pace with rapid changes and changes in service standards in the digital age (Dunleavy et al., 2006; Miriam Lips, et al., 2009). Therefore, starting in 2011, governments around the world began to introduce specialized digital government, introduce information technology to provide digital services and a broader transformation of public administration (Bates, 2012). Researchers have noted the main shortcomings of IT services in the public sector (Public Administration Select Committee, 2011; Peter & Robinson, 2014). At the initial stage of the introduction of e-government, servicing major government reforms, the decisions of many governments around the world, more or less outsourced to servicing private IT companies. At the time, governments lacked the expertise to examine private sector proposals, and the IT market was not sufficiently developed to implement serious government IT contracts. Therefore, governments have signed long-term “outdated” contracts for inefficient services offered at inflated prices (Dunleavy et al., 2011). The introduction of information technology required special government equipment, the development of appropriate technological solutions, especially to create a coherent government in a decentralized environment (Fishenden & Thompson, 2013). The problem of most governments was fragmentation. Instead of creating an integrated government, often with budget funds to solve local problems, services for specific projects and departments were purchased on a one-time basis. In most cases, purchasing IT systems for a specific government unit meant downsizing. Transactions were duplicated, systems were purchased several times to perform the same actions (for example, support customer transactions), but under different contracts, from different suppliers. It was costly for the country's budget. The lack of a digital infrastructure and database, which is the basis of public services and political work, has hampered the implementation of programs and political work in various government departments. In the context of tough reforms caused by the global financial crisis, Governments have begun to introduce the Government Digital Service (GDS), to adopt regulations, to develop strategies for the digitalization of the public sector, and to create nationwide Internet portals of public services. For example, the Government of Canada announced the creation of the Canadian Digital Service in its 2017 budget, the Ontario Digital Service was formed.

In Ukraine, the concept of information society development was approved (About the statement of the plan, 2007), the Implementation Plan and the Concept of e-government development in Ukraine (On approval of the Concept, 2010), the Methodology for forming information society development indicators was approved. (About the statement of the Methodology, 2013).

The European Digital Strategy aims to introduce technologies that significantly affect people's daily lives, contribute to the development of a strong and competitive economy that learns and shapes technologies in a way that respects European values. To assess the results of digitization of world economies, The European Commission has been publishing the Digital

Economy and Society Index (DESI, 2020) since 2014. DESI consists of five sub-indices that measure the development of: (1) high-speed Internet connectivity infrastructure; (2) ultrastructures of human capital development; (3) use of the Internet; (4) integration of digital technologies into business; (5) digital coverage of the public sector. According to the report (DESI, 2020), digitization has increased in the last year in all EU member states. The leaders are: Finland, Sweden and Denmark. It noted that the number of people who used e-government services increased from 58% to 67%. Thus, the introduction of e-government is intensifying. And such patterns will inevitably lead to digital transformation in the public sector (Ulanoff, Lance, 2017; Mergel, 2019).

The digital transformation of public administration creates the conditions for the development of the latest ecosystem of the IT state, which transfers civil service services to a new platform (Sagan et al., 2020). The implementation of innovation in the public sector aims to achieve better results, such as: better use of public resources, a more open and trusting society, as well as strengthening justice and care for citizens from all walks of life (OECD, 2017). The transition of public administration to a platform mechanism provides an opportunity to implement strategic management in the public administration system. The essence of the platforms is their ability to enhance the joint creation of value, which leads to the systematic provision of service to government agencies, improving the quality of services (Smedlund, 2016). Implementation of the digital transformation in the system of public administration - the introduction of the state-platform - is a transition to promising management methods (Daglio et al., 2014). That is, the system of public administration and civil service transformed into an advanced IT corporation (Dutchak et al., 2020). Technological bases of digital transformation are:

- big data - the growth of data storage and processing capabilities in all types of computer systems, as the basis of artificial intelligence;
- socialization and personalization - the need to attract a large number of users with their personal data to perform various roles;
- mobility - the availability of information from anywhere, using different devices (mobile phones, gadgets, laptops, etc.);
- cloud technologies, as a way and location of data storage, with the possibility of access from different places.

Their combination makes it possible to reduce the cost of the business process, analytically adapt products to the needs of each customer (customization) and deliver goods and services to the place of demand at the specified time. Customization in the public sector is a prerequisite for rapid servicing of the civil service. The digital transformation is associated with the advanced development of the services sector, including in the public sector. For the formation of integrity in the public sector, this is a key component for establishing effective and efficient interaction of

all structural units and bodies of public services. That is, a basis formed for network forms of interaction, in which the participants of interaction, in contrast to traditional schemes of industrial cooperation, exchange not material products but services.

Consulting in public administration designed to identify and develop the potential of the public administration system and public authorities in the implementation of the Strategy for Public Administration Reform (Strategy, 2018). The trend of increasing demand for consulting services in the field of digital transformation of public administration is due to the extremely low level of understanding of the tasks of digital transformation and the ultimate goals of this process. Consulting is becoming an integrative basis for public management of services, because customers (public authorities, departments) are quite difficult to navigate in the ocean of new solutions, often local problems. Increasing internal expertise with its resource capabilities is a very costly way, it is limited by the scope of activities and staff shortages. Professional consulting in the public sector is currently undergoing a stage of transformation. After all, the state authority, as a customer of consulting services, is not only important to help competent opinion, but also to offer a specific technological solution for digitization of specific processes, algorithms of interaction, efficient use of resources, select and implement them, and better provide as a service.

Thus, based on a literature review of the problem under study, we can draw the following conclusions:

1. Transformation processes in the public sector, first of all, affect changes in people, their general level of culture and behavior.
2. The transformation of public administration based on process and service approaches, which already sufficiently developed in business (there are standards and methods) that can be used to change public administration.
3. Theoretical and methodological basis for the transformation of public administration under the influence of digitalization is the concept of superservice, which leads to a paradigm shift in work on state services.
4. In order to ensure and implement platform solutions, it is necessary to expand the opportunities for participation of non-state actors, including consulting organizations, as carriers of the intellectual and personnel component of providing the state's superservice.

Data and Methodology

The tool for improving the quality of public services is consulting as type of intellectual activity aimed at solving problems in public administration. In the methodology of functional modeling IDEF0 (1993) for the graphical representation of the consultation process, a model is proposed (Fig. 1).

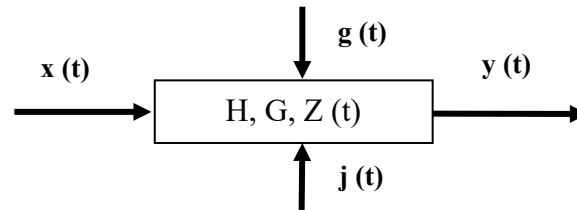


Figure 1. Scheme of graphical representation of the consultation process

where: $Z(t)$ - process (function) at any time t ; system status at a fixed point in time $t > t_0$, is determined by the previous state Z_0 and management actions $g(t)$ and mechanisms (resources) $j(t)$ in accordance with the conversion operator H , according to the dependence $Z(t) = H[Z(t_0), g(t), j(t)]$. The unit has input contacts to which the input signals $x(t)$, which, in accordance with the output operator G , converted into output signals $y(t)$: $y(t) = G[Z(t), x(t)]$.

The use of digital platforms in the implementation of the consulting process contributes to the achievement of the highest productivity - through the use of unified consulting operations and the parallel execution of a large number of these operations. Parallel consulting processes divided into consulting processes such as SIMD (Single Instruction Multiple Data) and MIMD (Multiple Instruction Multiple Data) and Multiple Instruction Multiple Data. Consulting processes such as SIMD are a vector tool for implementing consulting processes. Their high productivity depends on the conveyor organization of the implementation of other consulting processes. Multi-aggregate vector consulting systems consist of several vector tools for implementing consulting processes, called MSIMD (Multiple SIMD). Partnership client-consulting relations in project management in the public sector contribute to the internal solution of the problem. Solving the problem identified by the client by qualified methods and special tools - as a corresponding function, which called a characteristic (target) function - is the goal in the implementation of the consulting process.

Let \aleph - many problems that differ in properties, which in this case define the concept of the purpose of counseling (other properties are the same). Then the characteristic (target) function, denote it by ω , has the form:

$$\omega : \aleph \times \aleph \rightarrow [0, 1] \quad (1)$$

where $\omega(x, x^*)$ represents the degree of compliance of this problem $x \in \aleph$ with the purpose of counseling (ideal) $x^* \in \aleph$. It proposed to define the characteristic function by the corresponding distance function:

$$\delta : \aleph \times \aleph \rightarrow R^+ \quad (2)$$

using the formula:

$$\omega(x, x^*) \frac{\delta_m(x, y) - \delta(x, x^*)}{\delta_m(\tilde{x}, \tilde{y})} = 1 - \frac{\delta(x, x^*)}{\delta_m(x, y)} \quad (3)$$

where $\delta_m(x, y) = \max \delta(x, y); x, y \in \aleph$

Consulting services in the public sector are designed to achieve a specific goal - to solve this problem. The purpose of counseling is determined by the appropriate behavior function f_B^* on numerous problems characterized by the same initial problem and pattern of behavior M. Then many \aleph is represented by many behavioral problems:

$$F_B = (S, M, f_B) \quad (4)$$

differ only in behavioral functions f_B . The way to determine the distance between the problems is the Hamming distance (Alex et al., 2011):

$$\delta(x, y) = \sum_{c \in C} |f_B^x(c) - f_B^y(c)| \quad (5)$$

For probabilistic behavioral functions $\delta_m(x, y) = 2 \text{ i } \omega(x, x^*) = 1 - \delta(x, x^*)/2$; for possible $\delta_m(x, y^*) = |C|$; $\omega(x, x^*) = 1 - \delta(x, x^*)/|C|$.

Thus, different goals of counseling and characteristic functions are applicable to different types of problems. However, different types of counseling goals that require certain characteristics can be defined for the same types of problems. Thus, for behavioral problems, counseling goals can be defined through an appropriate behavioral function, many behavioral functions, many local behavioral functions for certain subsets of a parametric set, many behavioral functions that characterize such subproblems, and so on. To characterize the purpose of public sector counseling, it is basic to identify focused issues. Obviously, for each of the types of counseling goals - a specific characteristic function has required.

Results

Digital platforms as tools improving the quality of public administration

To implement the digital transformation of the public sector, it is proposed to create a single digital ecosystem. The only digital ecosystem Platform-as-a-Service (PaaS) is an ecosystem created on the basis of a software platform that is the basis for interaction between all participants. The basis of the development of such a business ecosystem is the number and uniqueness of services developed on the basis of the platform. The versatility of such a platform is based on the number of services used by customers, which puts them in the category of regular customers. Classical examples of such platform ecosystems are "Apple", "Amazon", "Google", "Facebook", "Microsoft", etc. the ecosystem in the public sector will provide: acceleration of management

activities; improving the quality of public administration through automation and providing remote access for users; expanding opportunities for interaction between citizens and businesses with the state by creating their own applications that work on the basis of this platform. That is, real conditions created for reducing the function of a civil servant as an intermediary between a citizen and the state, as the interaction "citizen - state" will be carried out through the interfaces of software applications. According to the research of the Boston Consulting Group, the results of the digitalization of public administration presented in Table 1.

Tables 1. Forecast results of digitalization in public administration

Indicators	2017	2018	2019
Number of public services for business in electronic form, million pcs. for a year	2,028	2,253	2,504
Number of hours released due to digitization, million hours per year	17	22	34
Cost savings of the state and business due to digitalization of public services, trillion dollars for a year	2,85	3,87	5,71
- cost savings of the state	0,21	0,22	0,23
- business cost savings	2,63	3,65	5,48

The main vectors of digital transformation are:

- creation of a single state information Platform - to improve the quality of public services;
- introduction of the principles of customization and customer orientation in public administration to meet the demands and needs of citizens;
- increase the effectiveness of management decisions, based on the analysis of relevant and reliable data (Data Driven Government);
- formation of a change management system for the implementation of strategic priorities, with the identification of the real needs of society;
- creation of a personnel management system, raising the professional level of civil servants;
- implementation of the Code of Ethics for Civil Servants, formation of a general corporate culture;
- implementation of the principle of transparency of the functioning of the public administration system;
- formation of an integrated system of public administration, with end-to-end interdepartmental digitalization of major business processes after their reengineering;
- ensuring consistency and synchronization of state information systems, their integral functioning and data integration on the basis of uniform normative rules;
- introduction of a system of control over the costs of the state apparatus through the centralization of ancillary processes.

The main transformational changes for the organization of work in public administration in the transition to digital platforms presented in Figure 2.

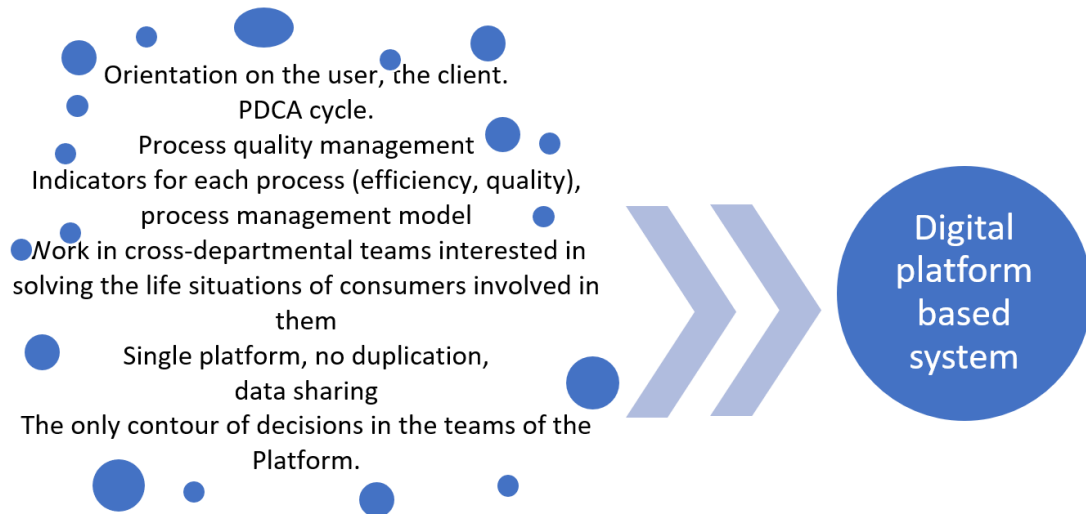


Figure 2. Characteristics of the organization of work in public administration in the transition to digital platforms

Figure 3 presents the basic principles of transferring the public administration system to a platform basis.












	Guarantee of terms of receiving services		Measurement of satisfaction
	The best customer experience		Online information
	We never ask twice and pre-fill all the forms		Personalized service
	Multichannel and cross-territoriality		Debureaucratization
	Digital result		End-to-end identification and authentication for all services
	Introduction of open <i>Application Programming Interface</i> (API) and data management		

Figure 3. Principles of implementation of processes in public administration on the basis of digital platforms

Experience shows that for the successful implementation of processes in public administration on the basis of digital platforms it is advisable to follow the basic principles based on modern methods of process change, which formed by the methodology of Lean Management (Forrester, 1995). This methodology involves the involvement of users in the work of process optimization, shifting the focus to effective interaction and value for the user. The following principles of implementation of processes in public administration on the basis of digital platforms offered:

1. Guarantee of terms of receiving services (Service Level Agreement (SLA) - an agreement on

the level of service, a formal agreement between the customer (citizen) and its provider (Platform), which contains a description of the service, the rights and obligations of the parties and an agreed level of quality of service. That is, by this agreement the state guarantees the provision of services to citizens through the Platform in a timely manner and of marked quality in all regions.

2. Best customer experience. That is, the best systems, including commercial ones, have used to interact with users of the Platform's services. The state can use bank branches and company offices to better serve citizens.
3. Never ask twice and pre-fill all forms. Within the framework of the Platform, a citizen should not re-provide previously entered or automatically generated information. The history of appeals and submission by this authority stored in the profile of the citizen, the ability to manage the availability of data for third parties determined by the privacy settings of the profile, and deleting / modifying important details of your profile is possible with a "digital arbitrator". This increases the satisfaction of citizens with the services of the Platform.
4. Multichannel and cross-territoriality. The requirement is the maintenance of unified services in all channels, which are available to citizens in all regions, regardless of place of residence.
5. Digital result. The citizen must receive the service in digital form. The minimum amount of time a citizen spends ordering and receiving a service using the Platform contributes to the growth of the number of services that a person orders online, as well as to the growth of the number of users of the Platform's services. The state does not allow "digital inequality" and obliged to provide a traditional service in the event that obtaining digital is not possible.
6. Measuring satisfaction. User satisfaction always measured by all processes. The level of citizen satisfaction is one of the main KPIs of the heads of responsible authorities.
7. Online information. The citizen receives timely notification on the status of provision / non-provision of the service and has the opportunity to monitor the status of the service online, which reduces the time a person spends on control and monitoring the status of the required service. The concept of "contextual highlighting" of the provisions of normative legal acts related to the provision of the service has been implemented in the personal account of the citizen. Such information allows a citizen to plan his day, which can also lead to increased citizen satisfaction.
8. Personalized service. The citizen receives a personalized service from start to finish. He is pleased when he receives a letter or message addressed to him in a respectful manner, or when he sees his name in the welcome window when entering the website of government agencies. Moreover, the personal information used allows you to modify the provision of any service "for each person".
9. Debureaucratization. Minimal involvement of officials in the process of providing and

processing services to citizens will minimize the amount of time spent on receiving services, remove the "bureaucratic factor" of decision-making, reduce corruption at all levels.

10. End-to-end identification and authentication for all services. Identification and authentication performed once at the time of the first application of a citizen. In the future, the systems store all personal data of a person, which minimizes the amount of time a citizen spends on processing a request for a service, clarifying the status of the request. When switching between services, re-authentication of the citizen was not required. The citizen also has access to information about requests from agencies to his personal information on the platform.
11. Introduction of open Application Programming Interface (API) and data management. Each state information system must provide for it is automatic integration with other systems. Owners of information systems and databases must have clear rules for their collection, processing and archiving. Integration of systems and data acquisition should not have organizational and technical barriers, and access of citizens and businesses to data should be based on clear and clearly stated principles of data openness, regulation of access and protection of personal data.

In addition to the implementation of these principles, it is necessary to apply organizational conditions that allow in practice to implement them: reform of procurement of IT and IT services (possibility to attract employees on a freelance basis, integration with universities, procurement through the online marketplace); abandonment of the legacy of the existing IT-architecture, the opportunity to challenge existing administrative regulations; development of in-house development with the development of open source development within government agencies; use of a public result indicator - reduction of government spending on activities in a particular area of transformation after the transformation process.

Trends in the consulting services market

Consulting is an effective means of mastering new management technologies, new methods and techniques of management, an effective method of rapid development in unfamiliar or rapidly changing conditions. The determinants of the development of the consulting services market are the development of digital technologies, the spread of paperless document management and the robotization of routine processes. The trend of 2019 was the intensification of the market of management and financial consulting. Fast-growing segments of management and financial consulting in recent years have been: business process optimization, accounting outsourcing, tax consulting, fundraising, business preparation for sale, development of strategies for small and medium-sized businesses (growth in these segments exceeds 5% by the end of 2019-2020).

During the crisis, issues of reducing operating costs became relevant. In such conditions, consulting companies will be able to create a more efficient business model by combining

technological analysis with human capital. In 2019-2020, audit services were in high demand, clients were interested in tax audit, which is due to the large-scale digitalization of fiscal supervision and the strengthening of the requirements of tax authorities.

Significant changes have taken place in the structure of valuation services, as the claims of tax authorities to transfer transactions are growing, which leads to an increase in requests to assess the validity of applied prices. There is also a growing interest of clients in legal consulting services in terms of the legitimacy of requests from tax authorities to provide information on counterparties and transactions, which often contradicts current legislation. Due to the pandemic and the constant increase in the level of digitalization of production and related processes in practice, consulting services are moving into the field of remote maintenance. In the context of the growing crisis, the range of crisis consulting services is expanding in terms of finding sources of funding, restructuring liabilities, cost optimization. Consulting services are becoming comprehensive to provide real help to businesses in finding a way out of the crisis. There is a high demand for IT consulting services from companies seeking to digitize document management and communications to enable remote work. The most popular types of consulting are currently: IT consulting: development and system integration; IT consulting: management consulting; Financial consulting; Tax consulting; legal consulting; evaluation activities; Consulting in the field of personnel management; Consulting in the field of strategic planning and organizational development; Consulting in the field of marketing and PR.

IT consulting has long been the most capacious segment of the consulting market.

Demand for IT consulting is supported by the state customer - both in the framework of informatization programs and in the framework of automation of current activities. The number of government orders is growing, the infrastructure for data collection, processing and analysis is expanding. By collecting and comparing data from various sources, knowledge extracted that large telecommunications, financial and government organizations use much more effectively not only for their own tasks, but also as a commodity for sale to other market participants. IT consulting services are currently the most popular in the digital economy project. The need to create a stable and secure information and telecommunications infrastructure, processing and storage of large amounts of data are forcing consulting companies to act more quickly and create new solutions.

The high need for IT consulting services noted by industrial enterprises: automated production planning solutions are in demand, which allows to provide production flexibility by increasing the speed of change and increasing accuracy by eliminating the human factor. This applies to enterprises in many industries, and is especially characteristic of discrete engineering with resource-intensive products. There is also an increase in demand for cloud products - this is due to the mass transition to remote mode, relatively low cost and ease of scaling cloud

solutions. Now companies are trying to ensure the maximum involvement of remote employees in the processes, to organize the availability of the necessary information and services, as well as to set up processes for goal setting and monitoring. The active development of the trend of interaction between the state and business, especially in terms of fiscal functionality, will force companies to continue to improve all types of accounting and business processes. Therefore, there is a growing interest in non-financial reporting, sustainable development reports, risk assessment, outsourcing and reengineering of business processes, regulation and automation of business functions. Quarantine has also increased demand for assessing the effectiveness of internal financial services and accounting. During the forced decline in business activity, companies focused on improving internal procedures, bringing them into full compliance with the law. Customers ask the consulting company to calculate the possibilities of optimizing working hours for their financial departments. The trend of outsourcing non-core functions for the company (accounting, treasury, budgeting and accounting, etc.) is growing. There is a significant demand for legal services and tax consulting, there was a demand for comprehensive due diligence - financial, tax and legal support of mergers and acquisitions, tax advice and transfer pricing. Against the background of quarantine, customers also need advice on rent and labor relations. The most pressing issues are the payment of rents, the risks of being prosecuted for mistakes made in business management during the crisis. Following the lifting of the moratorium on bankruptcies, bankruptcy proceedings and related separate disputes have expected to increase. High levels of demand are valuation services (real estate, business and intangible assets). Thus in the estimation of the real estate automation of decisions and deep analytics helps to increase volumes. Consulting in the field of personnel management is in great demand (HR consulting). The market of personnel consulting is: recruitment - selection of qualified personnel for the objects of counseling on a paid basis by: using its own database; Executive Search; Headhunting; outsourcing. Among the popular services, there were areas related to the optimization of organizational structure and number of employees, improving operational efficiency and labor rationing. Consulting provides assistance in the form of providing consulting services of various kinds (Fig. 4).

Consulting in the field of strategic planning and marketing is especially in demand. The state remains a major customer of marketing and strategies. There is an increase in demand for consulting from government agencies, there is a demand for strategic marketing research in the field of international industrial marketing, consumer marketing, service marketing. Issues of strategic development with the involvement of budget investments, public-private partnership programs are also relevant for many clients - companies with state participation. Increasingly, point analytical and consulting tasks (marketing research) are becoming an alternative to long-term and complex projects (market research).

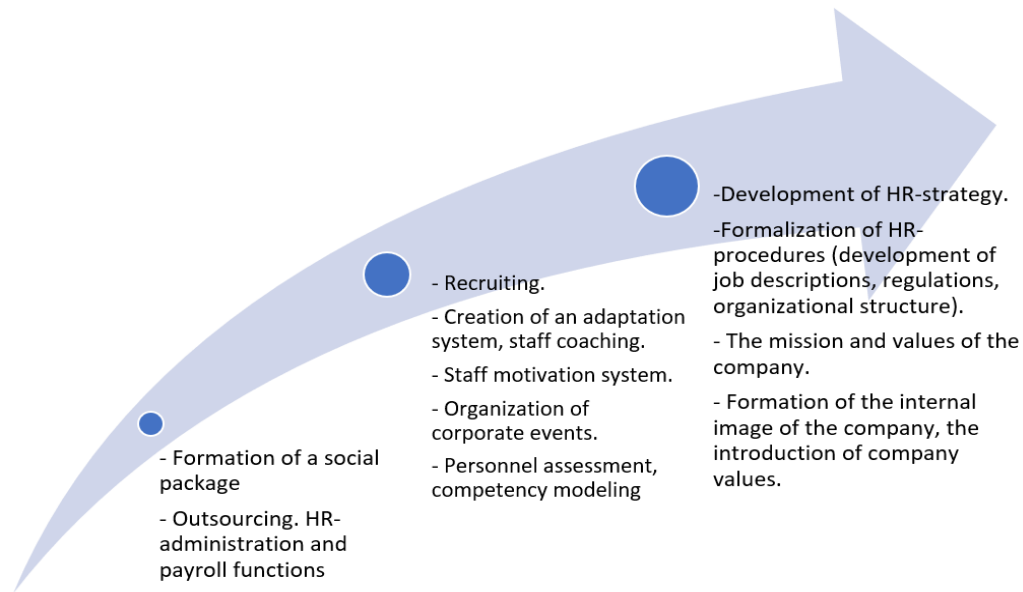


Figure 4. Basic personnel consulting services for government agencies

For example, CX-analysis - a comprehensive analysis of "user experience", identification of loyalty factors, decision-making models, as well as determining market share, pricing modeling, sales audit. Clients began to respond more often to the proposal to replace high-budget "monolithic" research with a rigidly fixed technical task, forecasts on a range of issues based on agile-methodology. This is an iterative process of analysis with regular refinement of the general vector, subtasks of the study and the resulting models. Another important trend is the digitalization of analytics, research results and algorithmization of research processes at the client - a hybrid service at the junction of marketing analysis and consulting, systems business analysis and digitization. Consulting in the public sector designed to make appropriate economic research - research and expertise, consulting and preparation of conclusions and recommendations in the field of economics and sociology. Innovation of the economy has accompanied by consulting on cluster development of regional actors. The state consulting tasked with the development and maintenance of sectoral programs in the framework of the development of innovative territorial production clusters in the relevant ministries, executive bodies and other institutions.

Modeling strategic consulting in the public sector

In the conditions of decentralization for real development of regions (territories) executive bodies need full-fledged state consultation which will help not to scatter budgetary funds on tasks which do not bring considerable growth, which do not attract potential investors and attention of central authorities. At the same time, the system component approach has based on the following components of consulting in the public sector:

- Analytical component: the content, subjects, objects, functions of strategic consulting of the

specified problem were analyzed, the economic portfolio of the organization with use of the basic tools of the matrix analysis was investigated.

- Project component: the algorithm of strategic business consulting and the basic models of mutual relations of subjects of consultation in strategic consulting for the purpose of maintenance of balance of expectations of the client and the consultant formed.
- Special component: attention has paid to the use of effective methods of strategic business consulting, taking into account its type and type of consulting agreements, methodological tools of management theory, strategic analysis and management, forecasting and foresight management; the peculiarities of the process of providing consulting assistance in the development and implementation of corporate legal strategy by organizations using such legal instruments as: due diligence, compliance, anti-corruption compliance, forensic audit, investor relations, government relations.
- Technological component: characterizes the sequence of development and implementation of corporate strategy, the process of choosing a "strategic area of administration" and "strategic corporate units", argues the need to develop digital and online strategies, transition to digital business models, substantiates the criteria for choosing a basic strategy.
- Consulting: substantiates the process of consulting to develop a strategy for technological leadership, simulation, venture and project strategies of the organization, identifies features of consulting client organizations on the nature, stages and business models of startups, methods of selection, principles and methods of evaluating the effectiveness of innovative projects.

The process of consulting in the public sector can be described using the basic provisions of the theory of active systems. To do this, the organizational system (OS), in its simplest form, consists of a center (the governing body of the public sector - the customer of the consulting service) and an agent (consulting company). The center, according to the theory of hierarchical games and the theory of active systems, is the player who makes the move first (has the right to set the rules of the game for other players), and the agent is the player who acts after known to him the choice of the first player. That is, the center is the governing body, the agent - managed subject. The decision-making process can be described by the following model:

$$\psi_0 = \{U_A, U_v, U_I, A_0, \Theta, \omega(*), \nu_0(*), I_0\} \quad (6)$$

where the index "A" refers to institutional management, «v» - to motivational, "I" - to information; actions (selected by the center of management strategy) are as follows: $u_A \in U_A$, $u_v \in U_v$, $u_I \in U_I$; A_0 - set of admissible the results of the agent, taking into account his preferences and expectations; $\omega(*)$ - changes in the result of the agent depending on the action and the environment, information about which reflected by variable I, with maximum

elimination of uncertainty; $v_0(*)$ - utility function. Figure 5 shows the management model, identifying the preferences and awareness of the agent (consulting company), which includes the structure of the management system, with the selection of the structure decision making by the agent.

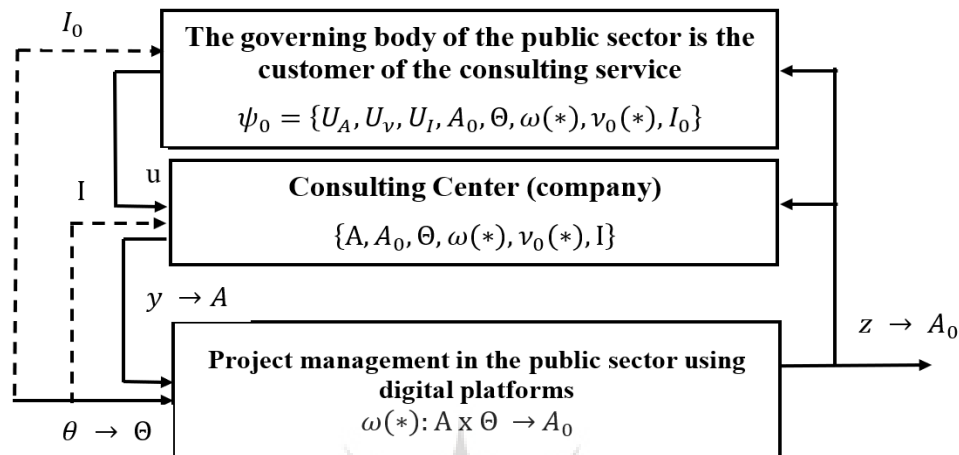


Figure 5. Implementation of consulting support for project management in the public sector using digital platforms

The logic of building such a model is as follows. Let the advantages of the agent in some possible results of activity are given by its utility function, and the results $v_0(*)$, activity $z \rightarrow A_0$ depends on the action $y \rightarrow A$ and the environment $\theta \rightarrow \Theta$ displayed by the function $z = \omega(y, \theta)$. In this case, the law $W_I(*)$ determined by the function $\omega(*)$ that reflects the structure of the passive controlled object, and the information I , which has an agent at the time of decision-making on the choice of specific actions. With a process-oriented approach as a model of possible target states organizational system consider the totality of all states of processes considered from input to output: $y = \{y_j \mid j \in J\}$, $\text{де } J = \{j \mid j = 1, 2, 3 \dots m\}$, where y_j - the set of all processes of the system; j - state of the process. The state of processes can be subject to local Y_j and global Y_{gl} constraints due to the nature of the interaction process / internal processes and process / external environment. If the choice of possible states was not limited, then the set of possible ones states, where $y = \prod_{j \in J} Y_j(c_j)$, $\text{де } c = \{c_j \mid j \in J\}$ - used in the model standards. In the presence of local and global constraints, the constraint model is represented as $Y_j = Y_{rn}(\prod_{j \in J} Y_j(c_j))$. Depending on the problem to be solved, dualism in the description is possible activities: through specific processes, and through centers of responsibility (organizational units). In the case of centers of responsibility: $y = \{y_j \mid j \in J\} \{y_j\}$ transformed into a state of the unit $\tilde{y} = \{y_i \mid i \in I\}$ or the state of the organizational system of n units: $I = \{i \mid i = 1, 2, 3 \dots n\}$; Y_c - many possible states of the system: $y \in \tilde{Y}(c) = \tilde{Y}_{rn} \cap (\prod_{i \in I} \tilde{Y}_i(c_i))$ or many possible states of the i -th unit $Y_i(c_i)$. Based on the above scheme (Figure 5), the efficiency criteria implementation of consulting support project management in the public sector using digital platforms there are some: minimization of the center's management costs; coherence - ie the actions of the

consulting agent must coincide and be consistent with the plans proposed by the center (public authority) - to stimulate the customer's actions on the actions of the consulting agent; non-manipulability - the reliability of information at all levels of government; economic responsibility - assessment of probable risks, determination of the level of economic responsibility on the basis of reliable data; redistribution of risks between the parties, rational behavior of all participants; determination by the center of the planned level of realization of the purposes, awareness of the consulting company about such plans, for the purpose of minimization of possible total losses from probable losses.

The implemented consulting process designed to solve the problem of synthesis of optimal control effects, ie the search for acceptable controls that have maximum efficiency.

Conclusion

In this study the main aspects of the use of digital platforms as a tool for the transformation of strategic consulting in public administration have considered. It established that in order to implement the digital transformation of the public sector, it is necessary to create a single digital ecosystem, based on a software platform, which will be the basis for interaction between all participants. The criteria of efficiency of realization of consulting support of project management in the public sector with use of digital platforms are allocated. The analysis was performed ways and methods of organizing consulting activities on the basis of digital platforms in order to provide information and analytical support for management technologies to reform the system of public administration and civil service. Based on the results of the study, a model of using consulting services in the public administration system was developed.

References

- Best Consulting Firms for Strategy Consulting. (2021) URL: <https://www.vault.com/best-companies-to-work-for/consulting/best-firms-in-each-practice-area/strategy-consulting>.
- About the statement of the Methodology of formation of indicators of development of an information society. Order of the Ministry of Education and Science 06.09.2013 № 1271.
- About the statement of the plan of actions for performance of the tasks provided by the Law of Ukraine About the Basic principles of development of an information society in Ukraine for 2007-2015. The order of the Cabinet of Ministers of Ukraine from August 15. 2007 № 653-r.
- Alex, X. Liu, Ke, Shen, Eric, Torng (2011). Large Scale Hamming Distance Query Processing. ICDE Conference, pp. 553 - 564.
- Amanda, Clarke (2020). Digital government units: what are they, and what do they mean for digital era public management renewal? *International Public Management Journal*, 23(3), 358-379, DOI: 10.1080/10967494.2019.1686447
- Babenko, V. (2020). Enterprise Innovation Management in Industry 4.0: Modeling Aspects. *Emerging*

- Extended Reality Technologies for Industry 4.0: Early Experiences with Conception, Design, Implementation, Evaluation and Deployment Collective monograph. Ed. by Jolanda G. Tromp et al. A John Wiley & Sons, Inc., Publication, pp. 1-24.
- Babenko, V.O., Yatsenko, R.M., Migunov, P.D., Salem, A.-B.M. (2020). MarkHub Cloud Online Editor as a modern web-based book creation tool. *CEUR Workshop Proceedings*. Vol. 2643, pp. 174–184.
- Bates, Jo. (2012). This is what modern deregulation looks like” : co-optation and contestation in the shaping of the UK’s Open Government Data Initiative. *The Journal of Community Informatics*, 8 (2).
- Bondarenko, S., Ivanchenkova, L., Okhrimenko, O., Zybarena, O., Karpitskaya, M., Huz, M. (2020). Risk Management of Enterprise Restructuring Strategy. *International Journal of Advanced Research in Engineering and Technology*. 11(5). 14-25.
- Bondarenko, S., Tkach, I., Drobotov, S., Mysyk, A., Plutytska, K. (2021). National Resilience as a Determinant of National Security of Ukraine. *Journal of Optimization in Industrial Engineering*. 14 (1), Winter & Spring. 111-117.
- Daglio, M., Gerson, D. & Kitchen, H. (2014). Building Organisational Capacity for Public Sector Innovation. Background Paper prepared for the OECD Conference “Innovating the Public Sector: from Ideas to Impact”, Paris, 12-13 November 2014.
- Dunleavy, P., Margetts, H., Bastow, S., & Tinkler, J. (2006). *Digital Era Governance-IT Corporations, the State and e-Government*. New York: Oxford University Press. 289 pp.
- Dutchak, S., Opolska, N., Shchokin, R., Durman, O., Shevtsiv M. (2020). International aspects of legal regulation of information relations in the global internet network. *Journal of Legal, Ethical and Regulatory Issues*, 23(3), 1-7.
- Federal Information Processing Standards Publication 183. Integration definition for function modeling (IDEFO). Dec. 1993.
- Fishenden, J., & M. Thompson (2013). Digital Government, Open Architecture, and Innovation: Why Public Sector IT Will Never Be the Same Again. *Journal of Public Administration Research and Theory*, 23 (4), 977–1004. DOI: 10.1093/jopart/mus022.
- Forrester, R. (1995). Implications of lean manufacturing for human resource strategy. *Work Study*, 44(3), 20–24.
- Holovaty, M. (2014). Multiculturalism as a means of nations and countries interethnic unity achieving. *Economic Annals-XXI, 11-12*, 15-18.
- Mergel, Ines. (2019). “Digital Service Teams in Government.” *Government Information Quarterly*, August, 101389. doi: 10.1016/j.giq.2019.07.001.
- Miriam, Lips, John, Taylor, A. & Joe, Organ (2009). *Service Transformation Towards Citizen-Centric Government? The Evolution of a Smart Card Application in UK Local Government*. Ebook: ICTs, Citizens and Governance: After the Hype! 14. 66-82.
- OECD. (2017). *Embracing Innovation in Government*. Global Trends. World Government Summit in collaboration with the OECD, February 2017, Dubai, United Arab Emirates, 12-14 February 2017.

- On approval of the Concept of e-government development in Ukraine. Order of the Cabinet of Ministers of Ukraine of December 13, 2010 № 2250-r.
- Peter, J., & Robinson, P. (2014). "Civic Hackathons: Innovation, Procurement, or Civic Engagement?: Civic Hackathon: Procurement or Civic Engagement?" *Review of Policy Research* 31 (4):349–57.
- Public Administration Select Committee (2011). *Government and IT – "A Recipe for Rip-Offs": Time for a New Approach*. London: House of Commons.
- Romanenko, Y. O., & Chaplay, I. V. (2016). Marketing communication system within public administration mechanisms. *Actual Problems of Economics*, 178(4), 69-78.
- Sagan, O., Yakovleva, S., Anisimova, E., Balokha, A., & Yeremenko, H. (2020). Digital didactics as a new model in the theory of education. *Revista Inclusiones*, 7 num Especial, 193-204.
- Smedlund, A. (2016). Digital Health Platform Complementor Motives and Effectual Reasoning. 49th Hawaii International Conference on System Sciences (HICSS), pp. 1614–1623.
- Strategy for public administration reform in Ukraine until (2021). URL: <https://zakon.rada.gov.ua/laws/show/ru/474-2016-%D1%80#Text>
- Sudomyr S., Niziaieva V., Lutay L., Prodanova L., Havryliuk O., Sherstyukova K. (2020). Methods And Techniques Of Motivation Of Subjects Of Regional Economy For Innovative Improvement. *International Journal of Scientific & Technology Research*. 9(3). 1196-11200.
- The Digital Economy and Society Index (DESI). URL: <https://ec.europa.eu/digital-single-market/en/digital-economy-and-society-index-desi>.
- The European Digital Strategy. URL: <https://ec.europa.eu/digital-single-market/en/content/european-digital-strategy>.
- Ulanoff, Lance. (2017). "Should We Be Worried about the Future of the U.S. Digital Service?" *Mashable*, April 24. URL: <http://mashable.com/2017/04/24/the-future-of-the-us-digital-service/>.

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