Evaluation Of The Readiness Of The Enterprise For Digital Transformation

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Abstract. The article examines the theoretical and practical aspects of assessing the level of digital maturity (readiness) of an enterprise for digital transformation. The analysis of existing foreign and domestic methods is carried out, on the basis of which the author's approach is proposed. The developed principles imply the allocation of five basic functional areas and the corresponding criteria, the fulfillment of which by the enterprise will allow to form the basis for the successful implementation of the digital transformation project by reasonably defining priorities, goals and objectives. It is shown that a digital transformation strategy should be a logically coherent, interrelated sequence of events or programs, including specific actions that must be performed to achieve the goals of digital transformation.

Keywords: business processes, information technology, common information space, control system, corporate culture, digital maturity assessment, digital transformation, goal setting, level of digitalization, strategy, valuation model.

Introduction

Nowadays Russia is at the initial stage, both in terms of real investments and in the implementation of the national program «Digital Economy»¹. The current situation (as of August 1, 2021, the execution of budget expenditures under the Digital Economy program is 16.7%; in 2020 this figure was 10.5%, and in 2019 - 53.6%) ² became possible due to the following reasons:

1. Lack of understanding by the management of enterprises of the role and importance of digital transformation in terms of performance improvement. In this case, it is believed that things are going so well, that there is no need to engage in incomprehensible activities, it is enough just to automate some local areas, i.e. there is no understanding of what technologies are used - digital or information.

2. Exaggerated expectations from digital transformation projects. This happens when modern technologies are being introduced in the absence of objective prerequisites for success.

¹ Execution of costs for the national project "Digital Economy of the Russian Federation" was less than 17% - Ministry of Finance. URL: https://d-russia.ru/ispolnenie-rashodov-po-nacproektu-cifrovaja-jekonomika-rf-sostavilo-menee-17-minfin.html
² The execution of the budget for the "Digital economy" in 2020 is the worst among all national projects. URL: https://www.cnews.ru/news/top/2020-07-10_ispolnenie_rashodov_byudzheta
(outdated IT infrastructure, lack of qualified personnel, incorrect market assessment, etc.). In this case, it is safe to say that before proceeding with the digital transformation, the following important points were not met:

- a preliminary evaluation of the readiness of the enterprise for digital transformation was not carried out;
- priority areas of digitalization were not identified, and, as a result, resources were incorrectly distributed;
- point control over the execution of projects was not properly carried out, that is, a business process management system was not created;

The result of such actions (or inaction) is the loss of time and money.

3. The absence of a strategy or strategic vision in which direction and where enterprises should develop in modern conditions. Without a strategy, there is no accessible understanding of the goals, it is impossible to formulate objectives, develop activities and assess the required resources.

4. Poorly conducted evaluation of the readiness of the enterprise for digital transformation. It seems appropriate, before taking any action, to conduct a preliminary analysis and evaluation of the current state of the production and IT infrastructure, business processes, resources and other factors that can have a significant impact on the formation of priorities.

The considered main reasons appear to be a consequence of the fact that in both state-owned companies and commercial structures there is not enough number of digital transformation projects to master the planned budget of the Digital Economy program. Projects that truly meet strategic needs have the appropriate potential for development and scaling with a clear payback period for investments. For the most part, this is due to a general misunderstanding of the principles of strategizing and due to non-compliance with the required methodology for implementing changes, the lack of a strategic business model (Babanova, Orlov & Antonyan, 2018; Dolganova, Deeva, 2019; Galimova, 2019).

In connection with the above, the noted issues of elaboration and additional study, which determined the purpose of the study - the development of methodological approaches to assessing the digital maturity of an enterprise for the subsequent formation of a sound digital transformation strategy.

The stated goal provides for the solution of the following tasks:

- development of conceptual provisions for the digital transformation strategy of a large production association, for which such a project is vital.
- analysis and generalization of existing methods for assessing the readiness of an enterprise for digital transformation and, on this basis, the development of author's methods.

**Methodology**

Many scientific works are devoted to the development of the theory of strategy and the study of strategizing issues, including such as: P. Bishop, J. Bower, J. Mathews, I. Ansoff, E. Phelps, D. Kahneman, A. Humphrey, V. Kvint et al. Their works analysis allowed us to form a firm opinion that digital transformation is an integral part of strategic thinking in the formation of business long-term plans for competitive development.
Digital transformation is more about strategic thinking, less about technology, and effective action for its physical implementation depends on two critical aspects that reflect the maturity of digital transformation (Kane et al., 2015):

- consumer value, when digital products and services meet the numerous requirements of all stakeholders and their information component is important in the processes of social reproduction;
- perception of innovations, when the potential of digital technologies is used to the maximum extent possible, due to the existing digital competencies applied within the framework of a single policy, strategy, structure, goals of business owners and staff.

For a more accurate positioning of an enterprise on the path of transformation, four levels of the state (maturity) of digital transformation are distinguished (Pinchuk, Zhuravlev, 2020; Beer et al., 2019):

- digital laggard;
- digital trailblazer;
- digital follower;
- digital leader.

For leadership in digital transformation projects to be justified and successful, it is necessary to understand the value chain of its formation, which systematizes knowledge on strategy development and acts as a kind of multiplier (Kvint, 2015).

Figure 1 represents the author's vision of the conceptual management scheme for the preparation and implementation of digital transformation.
Fig. 1. Conceptual management scheme for the preparation and implementation of digital transformation
Source: author.

This diagram clearly demonstrates a step-by-step algorithm for carrying out work on the digital transformation of an enterprise:

1. Digital Technologies and Consumer Values of Digital Transformation. Technology preferences are formed on the basis of a marketing analysis of the market according to various criteria: availability, quality, total cost of ownership, country of origin, continuity in relation to existing ones, etc. The values of digital transformation for an enterprise are formalized in the process of conducting a comprehensive analysis (Chaadaev, 2018).

2. Digital transformation strategy. A document that is a long-term plan for the development of an enterprise, developed as a result of a critical analysis of external and internal factors, an assessment of existing trends and technologies that provide an increase in added value, and is also aimed at creating an action plan, the implementation of which will ensure a stable position in the market in the long term (Popov, Kiseleva & Iakovleva, 2018).

3. Assessment of readiness (digital maturity) of an enterprise for digital transformation. One of the key stages that allows you to position the enterprise in terms of compliance with its capabilities to achieve the goals and objectives outlined in the strategy. The procedures for conducting such an assessment will be discussed below.

4. The current readiness level. A formal description of the enterprise, its structure, infrastructure, available resources, etc., giving a clear understanding of what needs to be done before starting a digital transformation project. Based on the results of the analysis of the document, the sections of the strategy are adjusted (if necessary) (changes in priorities, technologies, deadlines, structure, etc.).

5. Required level of readiness. Documentary confirmation of the readiness of the enterprise for digital transformation, a certain guarantee that the selected methods and technologies will be integrated and implemented into the existing production process at minimal cost (Davenport, Wester man, 2014).

6. Road map. It is a tool to support strategic planning by comparing short and long term goals with specific technology solutions. In fact, it is an action plan that implements the process of managing the fuzzy interface of innovations, including providing the opportunity to include informal (non-financial) goals for a more holistic understanding of the tasks of digital transformation. The roadmap helps to achieve the most complete shared understanding of the needs of the enterprise and how to meet them, and also forms a mechanism that provides a framework for planning and coordinating technological developments.

7. Business process management system. A set of tools that allows you to carry out procedures for managing, monitoring and controlling the implementation of digital transformation activities (Chaadaev, 2007).

8. Feedback. Its qualitative characteristics (reliability and relevance) make it possible to carry out operational management actions that have positive values.

Results and discussion
We will consider the methodological aspects of evaluating the readiness of an enterprise for digital transformation, since, according to the author, this stage requires increased attention and the maximum possible formalization.

So, nowadays there are several approaches to evaluate the readiness of an enterprise for digital transformation, but all of them are based on the collection and analysis of information obtained by interviewing (filling out questionnaires) to determine the quality of corporate culture, the level of digital competencies, optimality business processes, etc. A quantitative and qualitative evaluation is given to the state of the IT infrastructure in terms of its compliance with the tasks ahead (performance, scalability, security, maintenance costs, licensing policy, etc.) (Isaev, Korovkina & Tabakova, 2018; Gollenia, Uhl & Giovanoli, 2012; Obwegeser et al., 2020).

The final readiness evaluation is given after a quantitative processing of the assessments obtained as a result of the survey and revealed the current levels of information and digital technology development in the enterprise (Pradhan, Mallik & Bagchi, 2018); corporate, executive and organizational-administrative culture; business environment, etc.

One of the most common readiness evaluation methods is the «Digital business aptitude» (DBA). The method was developed by one of the world's largest consulting companies KPMG on the basis of its successful practical experience, its essence is to assess the basic criteria of the five main areas of the enterprise (assets.kpmg).

In accordance with the method, the enterprise independently and/or with the involvement of independent experts assesses readiness for digital transformation and, if necessary, eliminates factors that prevent the start of the project. Conducting a comparative assessment with other enterprises of a similar profile of activity, Russian and/or foreign, will help identify common trends and clearly formulate the goals and objectives of digital transformation.

Another common model for assessing the digital maturity of an enterprise is the Forrester 4.0 model (Rajnai, Kocsis, 2018), which is a set of criteria that allows you to identify the methods and methods that an enterprise uses to introduce technologies that increase productivity and improve its financial performance economic activity. When using this model, not only reconfigurable functional areas are evaluated, but the level of digitalization at which the enterprise is currently located is determined. The achieved level of digitalization can be determined based on the analysis of the answers received as a result of interviews with employees.

There are other methods (Valdez-de-Leon, 2016; Purlik, 2018; Babkin et al., 2017) based on an evaluation of additional functional areas of the enterprise (relationships with consumers, organization of research, marketing and communications, organizational structure, practice of development and management of information technology, etc.)

So, for example, the approach practiced by the digital technology implementation specialists of the Acatech association, which has the name «Industrie 4.0 Maturity», is of interest index³. The method is based on the analysis of four main components: the quality and structure of tangible and intangible IT assets, the ability of existing information systems to integrate into a single information space, organizational structure and corporate culture. For each of the functional areas, there are six levels of enterprise readiness for digital transformation, with the first two characterizing readiness itself, and the next four determining the success of the project as a whole.

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³ Industry 4.0 Maturity Index. Managing the Digital Transformation of Companies. URL: https://en.acatech.de/publication/industrie-4-0-maturity-index-update-2020/
The analysis of existing methods made it possible to develop the author's concept of assessing the readiness of an enterprise for digital transformation. According to the author, the following approach can be used as an analytical tool for domestic enterprises, most of which are at the initial stage of digitalization.

1. Conducting an evaluation of digital transformation readiness criteria based on the identification of five key functional areas (Table 1).

### Table 1 Basic criteria for enterprise readiness for digital transformation

<table>
<thead>
<tr>
<th>Key areas</th>
<th>Criteria</th>
</tr>
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<tbody>
<tr>
<td>Business process management system</td>
<td>Umbrella system for managing processes, projects and enterprise resources. Availability of corporate standards and regulations for the implementation of production life cycle procedures. Development of a system for reporting and monitoring key performance indicators.</td>
</tr>
<tr>
<td>IT infrastructure</td>
<td>Server and computing equipment, networks and communications, data transmission equipment, data storage, information systems and DBMS, which together make it possible to organize a digital platform to support the upcoming transformations.</td>
</tr>
<tr>
<td>Data usage</td>
<td>Structural systematization of information in databases and knowledge. The collection, processing, analysis and storage of data is carried out in accordance with a conscious understanding of their value and purpose.</td>
</tr>
<tr>
<td>Organization of business processes</td>
<td>Availability of a unified environment for describing and monitoring the execution of business processes, the possibility of organizing their end-to-end implementation when creating new vertical and horizontal links.</td>
</tr>
<tr>
<td>Corporate culture</td>
<td>Availability of a system of key performance indicators and an open information portal with access to information about the enterprise. Availability of training programs for employees and development of digital competencies. Transparent and understandable system of motivation.</td>
</tr>
</tbody>
</table>

Source: author.

2. Conducting an evaluation of the basic functionality that visualizes the ability (readiness) of an enterprise to create an applied digital platform, which is the basis for digital transformation (table 2).

### Table 2 Characteristics of enterprise readiness for digital transformation

<table>
<thead>
<tr>
<th>Key areas</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functions</td>
<td>Characteristic</td>
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<tr>
<td>Data management master-system</td>
<td>The future core of the digital platform (enterprise IT ecosystem) based on single, consistent and consistent data. Open intuitive interfaces that allow seamless integration with all enterprise information systems.</td>
</tr>
<tr>
<td>Safety</td>
<td>Accounting for elements and components of the IT infrastructure, including both tangible and intangible assets (licenses). Availability of digital passports for equipment and software. Efficient cyber threat countermeasures system.</td>
</tr>
<tr>
<td>Interaction</td>
<td>The presence of vertical and horizontal links between business processes. Allows you to make informed operational decisions, while eliminating the possibility of losing part of the information.</td>
</tr>
<tr>
<td>Decision making speed</td>
<td>A developed system of reporting and monitoring of emergency situations based on well-developed action patterns make it possible to eliminate the random factor in decision-making, thereby significantly reducing the information processing time required to develop control actions.</td>
</tr>
<tr>
<td>Feedback</td>
<td>Ability to timely make corrective changes to existing operational, tactical and strategic plans. It is implemented in the presence of an information portal, a system of personal accounts of employees, means of communication and methods for monitoring the step-by-step execution of decisions made with documentation.</td>
</tr>
</tbody>
</table>

Source: author.

3. Conducting an evaluation of the level of digitalization of an enterprise, necessary for reasonable goal-setting of digital transformation tasks and determining its priorities (table 3).

Table 3 Assessment of the level of the current digitalization of the enterprise
As noted earlier, evaluating the readiness of an enterprise for digital transformation is only the first stage; for a full-fledged decision-making, an integrated approach is required, including organizational preparation and, above all, the creation of an integrated business process management system.

Conclusion
In the course of the study, a comprehensive analysis of existing methods for assessing the digital maturity of enterprises and their readiness for digital transformation was carried out, on the basis of which the author's approach was proposed. The developed principles imply the identification of five basic functional areas and their corresponding criteria, the fulfillment of which by the enterprise will form the basis for the successful implementation of the digital transformation project by reasonably defining priorities, goals and objectives.

References


Valdez-de-Leon O. (2016) A Digital maturity model for telecommunications service providers. Technology innovation management review, 6(8), 19-25.