

Scientific article

UDC 330.47

DOI: <https://doi.org/10.57809/2023.2.3.6.4>

ASSESSMENT OF PROCESS MATURITY AT SERVICE COMPANIES

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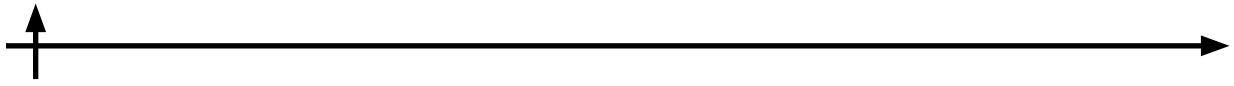
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Abstract. Assessing process maturity of network service companies allows not only to get an idea of the current level of work with business processes, but also to see shortcomings and shortcomings in their description and help managers make informed management decisions to achieve business development goals. Today, there are various models of maturity levels, but they are all based on the evolutionary, consistent development of the organization. It is important to understand that changes related to the improvement of the management system may not occur sequentially: in some areas, the company can move far, in others, on the contrary, it can lag far behind. Therefore, maturity levels can overlap, making it difficult to determine the exact stage of a firm's development. In this regard, in this study, it is proposed to assess the level of process maturity based on the following system methods and models: Capability Maturity Model Integrated (CMMI), Business Process Management Maturity Model (BPMMM), and Process and Enterprise Maturity Model (PEMM).

Keywords: process maturity, business process, service company

Citation: Orlova V., Voronova O. Assessment of process maturity at service companies. Technoeconomics. 2023. 2. 3 (6). 44–55. DOI: <https://doi.org/10.57809/2023.2.3.6.4>

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Научная статья

УДК 330.47

DOI: <https://doi.org/10.57809/2023.2.3.6.4>

ОЦЕНКА УРОВНЯ ПРОЦЕССНОЙ ЗРЕЛОСТИ СЕРВИСНЫХ КОМПАНИЙ

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Аннотация. Оценка процессной зрелости сервисных компаний позволяет не только получить представление о текущем уровне работы с бизнес-процессами, но и увидеть недочеты и недоработки в их описании и помочь менеджерам принимать взвешенные управленческие решения для достижения целей развития бизнеса. Сегодня существуют различные модели уровней зрелости, но все они базируются на эволюционном, последовательном развитии организации. Важно понимать, что изменения, касающиеся совершенствования системы управления могут происходить не поочередно: по одним направлениям компания может продвинуться далеко, по другим, наоборот, сильно отставать. Поэтому уровни зрелости могут накладываться друг на друга, в результате чего определить точную стадию развития фирмы бывает достаточно затруднительно. В этой связи в данном исследовании оценку уровня процессной зрелости предлагается провести на основе следующих системных методик и моделей: Capability Maturity Model Integrated (СММИ), Business Process Management Maturity Model (BPMММ), а также Process and Enterprise Maturity Model (РЕММ).

Ключевые слова: процессная зрелость, бизнес-процесс, сервисная компания

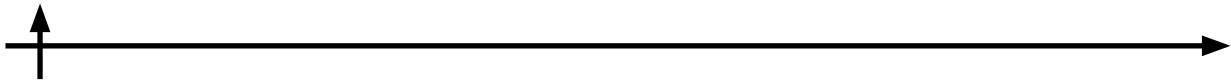
Для цитирования: Орлова В., Воронова О. Оценка уровня процессной зрелости сервисных компаний // Техноэкономика. 2023. Т. 2, № 3 (6). С. 44–55. DOI: <https://doi.org/10.57809/2023.2.3.6.4>

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Introduction

High level of competition, growing needs and expectations of customers, rapid development of IT infrastructure, sharp aggravation of economic and political instability of the country force the company to continuously update and improve its activities in order to instantly adjust to changes in the external environment and improve the performance of its activities. Today it is becoming increasingly difficult for most organizations to maintain a competitive advantage. A wide range of offered goods and services, the use of advanced technologies, high quality of service and other factors of maintaining competitiveness have long been transformed into minimum conditions of presence in the market. To date, it is impossible to solve the issues of improving the efficiency of business entities without the formation of their effective business model.

In this context, the more competitive a company is, the better it is able to take into account not only the changing market conditions, but also to analyze and adjust to market requirements its internal business environment, represented by various elements that are aimed at creating value and turning this value into profit. In order to develop a unified view of the mechanism of a particular business unit, it is necessary to understand what actions and in what sequence are performed in the company on the way to creating a useful product for consumers and achieving



the desired results of activity. In this, the firm is helped by identifying and analyzing the business processes that form the basis of its business model.

It is the description of the processes running in the organization that allows to see a holistic picture of its work, to identify the reasons preventing the achievement of the set goals, and to develop recommendations for their elimination to improve the financial and economic performance of the company as a whole, and to further optimize the totality of business processes. For network trading companies, careful monitoring of the maturity of current business processes is crucial for the development of promising measures for further improvement. In this study, the specifics of business processes, as well as the assessment of their maturity level, taking into account the key performance indicators of the main business processes is carried out on the example of the company "Communications and Radio Navigation", supplying and servicing of marine radio-navigation equipment and communications. Today this company is the leader in terms of the number of engineers among service companies in the field of communication and navigation maintenance on the operating fleet in the Russian Federation.

Materials and Methods

The methodological basis of the study is: collection and analysis of information, comparison, description, classification and generalization. The theoretical basis of the study was the works of domestic and foreign authors: on the formation of the business model (A. Osterwalder, I. Pinje, G. Hamel, W. Chan Kim, R. Mobarn, etc.), on the basics of the process approach to management and business process modeling (A. Koptelov, V. Repin, V. Eliferov, I. Fedorov, etc.). The company's financial statements were also used as sources of information.

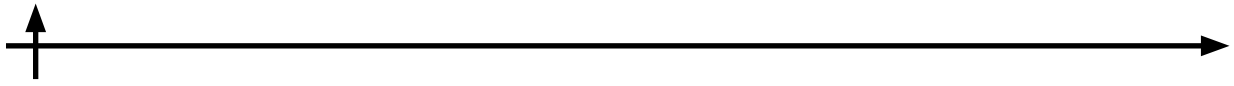
Results and Discussion

Against the background of high level of competition and growing customer needs, the most important tools used to improve business efficiency are methods of modeling and evaluating business processes (Dolganova and Vinogradova, 2016; Kamennova, 2019). In order to adjust to the business environment and not to lose the pace of development, companies are actively using software tools to describe and optimize their activities. The ultimate goal of using such techniques and software tools is to modify business processes and, as a consequence, improve financial and economic performance, improve product quality, increase the degree of satisfaction of external and internal customers, implement automation systems, etc.

The fundamental basis of modern approaches to management is the process approach, which provides a methodological basis for continuous improvement of the organization's activities. According to GOST R 54985-2018, the process approach implies the use by a company of a system of processes along with their identification and interaction, as well as the management of these processes in order to obtain the desired result (GOST R 54985-2018, 2013). In turn, a business process is understood as a periodically repeated, controlled activity to transform "inputs" (raw materials, semi-finished products, information, etc.) into "outputs", that is, into a useful product or service for the customer.

In contrast to the functional approach, focusing on individual functions, works and performers, the process approach does not emphasize the efficiency of individual fragments (functions), but the efficiency of the process as a whole, the flow of events to create value. It allows you to see a holistic picture of the firm's work, to evaluate all its actions in terms of the final result, as well as:

- helps to structure the company's problems and their impact on each other;
- gives the opportunity to develop, not limited to one-off remedial actions, but systemati-



cally, systematically solving problems;

– makes it possible to simultaneously build effective management for the medium and sometimes even long-term perspective as current problems are solved (Silich and Silich, 2011).

By implementing the process approach, the company creates a management system that will be aimed at the effective development of the organization by managing each significant business process throughout its life cycle. And the quality of this management can be assessed by evaluating the level of process maturity of the company. Management maturity refers to the process of continuous improvement of the firm's activities through continuous improvement of the strategic management methodology and its integration into the overall management system of the organization. It is important not to confuse the concept of process management maturity with business process maturity (Repin and Eliferov, 2013; Mashtakov et al., 2023). If the maturity level of a certain process allows us to determine its degree of compliance with the criteria of certainty, manageability, controllability and efficiency, the maturity level of an entire company shows how successful it is in managing the totality of these processes.

One of the most common models used in practice today is the Capability Maturity Model Integrated (CMMI). It consists of three methodologies aimed at assessing different areas of a company's work with the purpose of their subsequent improvement (People CMM, nd.; RBC Information Agency, nd.).

CMMI was developed in the late 80's of the XX century by the US Software Engineering Institute at Carnegie Mellon University as a tool allowing large government organizations to select the best software vendors. Further refinement and improvement of the model gave it a unified form and made it suitable for assessing various aspects of any organization's activity, including the level of process management development.

To assess the level of a company's process maturity, CMMI proposes to use a scale of five levels, shown in Fig. 1.

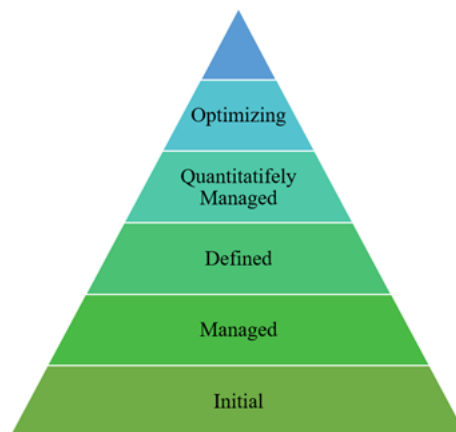
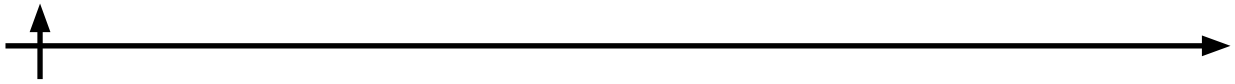


Fig. 1. Process maturity levels

Level 1. "Initial". At this level, business processes in the company are not described and are poorly controlled. The firm's activities are a bit haphazard, there is no certainty about the future, there are no internal regulatory documents, and the quality of work performed is not always stable.

Level 2. "Managed". At this stage, the company's processes are outlined only at the project level. Standards are appearing that allow planning, implementing, measuring and controlling



them. However, there are still many unresolved issues.

Level 3. "Defined". All major business processes at this level are defined and documented. Management already has a target picture of the company's operations and the processes in place to achieve the strategic objectives.

Level 4. "Managed based on quantitative data". At the fourth stage, the implementation of all the organization's processes is tracked, monitored and measured against pre-formulated performance indicators. Also for companies of this level is characterized by the use of special software tools for process management.

Level 5. "Optimizable". At the final stage, the company actively manages business processes, constantly improving and perfecting its activities (Vasilieva, 2012).

Organizations that have reached Level 4 and 5 have highly mature process management, continuously evolving, adapting, and going beyond their scope to create new, better value propositions for customers (Volovik, 2020; What is CIMM, nd.).

Another fairly common model is the Business Process Management Maturity Model (BPMMM). The BPMMM model, developed by the research and consulting company "Gartner", is designed to help companies overcome all barriers to the successful implementation of the BPM concept and to form such a corporate business process management strategy that would meet all the business objectives of the organization. BPMMM represents six stages of a company's maturity in terms of managing its business processes (see Figure 2).

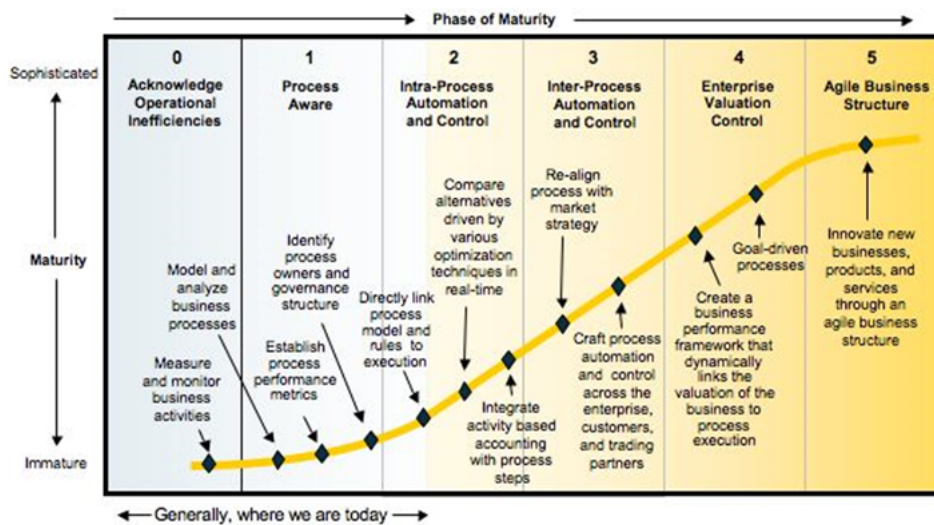
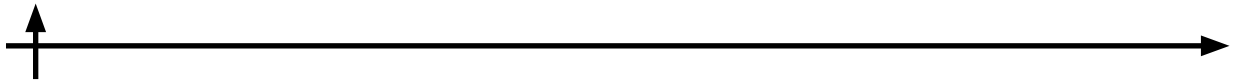


Fig. 2. Six stages of the company's process maturity

The journey to a fully process-oriented organization begins at Stage 0 ("Recognition of Operational Inefficiency") with the realization that traditional approaches to business improvement will not yield meaningful results. The need to find effective ways of development leads it to the first stage - "Process Engagement" - where the firm begins to build a business process management system and create metrics to assess its performance.

As the company becomes more aware of the processes, it begins to regulate them and automate some of them for execution control (phase 2). Gradually, the boundaries of individual business processes expand, and in phase 3 the organization begins to integrate them with each other, as well as with the processes of key partners and customers (Pirogova, 2017; Ilin et al., 2017).

Phase 4 ("Value Chain Management") comes when the company creates a model in which



the strategic and operational goals of the business are closely aligned with the business processes being implemented. Ultimately, all these activities lead the firm to create a flexible business structure (stage 5) that can adapt existing processes and create new ones in response to changes in the external and internal environment.

The peculiarity of this model is that simultaneously with all maturity stages the improvement of the company's process management is also considered within the framework of six organizational factors, which should develop in parallel and in a balanced way as the firm moves from stage to stage (see Figure 3 and Table 1).

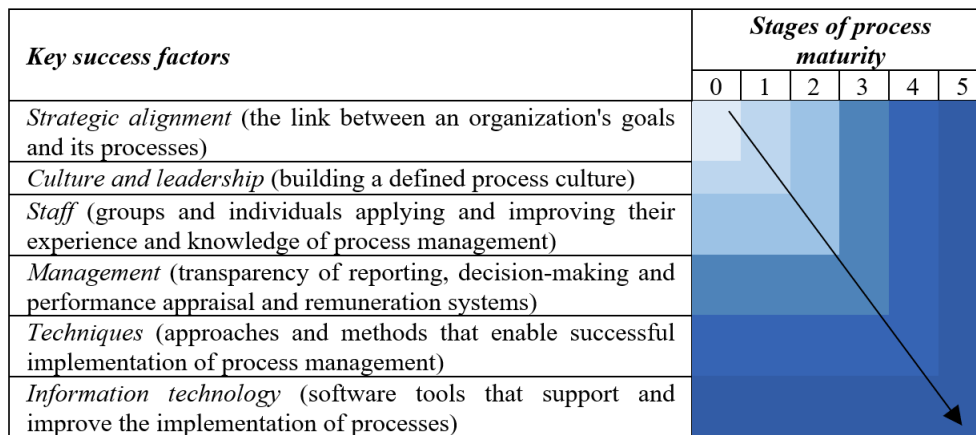


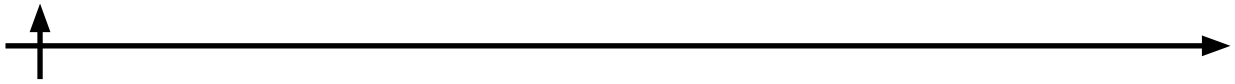
Fig. 3. Organizational factors of BPMMM

If the previous two models touched upon different aspects of the process management system, then, for example, the People CMM (People Capability Maturity Model) proposes to consider the level of process maturity based on the assessment of personnel management (People CMM, nd.).

According to this model, there are five levels of process maturity (see Table 2), which can be taken literally as a chronological sequence of development and improvement of personnel management practices.

Table 1. Comparison of EasyMerch and iSellMore systems

№	Level	Focal aspect of development	Typical features
1	“Initial”	Non-systemic management	Recognizing the dependence of the company's performance results on the quality of personnel work
2	“Managed”	HR management	Training and development; work environment; performance management; communication and coordination
3	“Defined”	Competence management	Personnel planning; competency-based work; career development; culture of belonging; competency analysis
4	“Forecasted”	Opportunity management	Capability management; quantifying staff performance; mentoring; competence as an asset
5	“Optimizable”	Change management	Innovations in personnel management; continuous development of capabilities; alignment of performance with company goals



Despite the universality of this model, analyzing the process maturity of a company by only one aspect will be considered incomplete. However, the assessment should be carried out comprehensively, touching upon as many areas of business process management as possible (Koptelov, 2019a; KPI system, nd.; Khazieva, 2021).

For a comprehensive assessment of the process maturity of companies operating in the market of radio navigation equipment service, it is possible to use a four-level model PEMM (Process and Enterprise Maturity Model), which was proposed by Michael Hammer (Hammer, 2007).

The author suggests that enterprise maturity should be assessed along four dimensions, viz: "Leadership", "Culture", "Business Process Specialists" and "Process Management Structure".

In turn, for each aspect the directions of analysis are defined. For example, "Culture" involves assessing:

- teamwork;
- the degree of the company's orientation towards consumers;
- the degree of personnel responsibility for the results of processes;
- the attitude of employees to changes.

For each area, statements are prescribed, which are entered in the columns of the table corresponding to one or another maturity level (Koptelov, 2019b; Melenovsky and Sinur, 2006).

Conclusions

Assessment of process management is carried out by collecting data on the basis of which it is possible to determine by expert judgment the degree of compliance of each of the presented statements with the real state of affairs in the company:

- if the statement is true or at least 80 % true, the corresponding cell is colored green (or 80 + is spelled out);
- if the company is not sure that the statement is true, the cell is colored yellow (20-80);
- if the statement is mostly incorrect or less than 20% correct, it is colored red (20 -).

Table 2 presents a detailed assessment of the maturity level of the process management of the company "Communication and Radio Navigation" on the following aspects: awareness, distribution of responsibilities, action style, teamwork, attention to customers.

Table 3 presents a detailed assessment of the maturity level of the process management of the company "Communication and Radio Navigation" on the following aspects: responsibility, attitude to change, people, methodology, business process model, responsibilities, work coordination (Presentation of the company SIR, nd.).

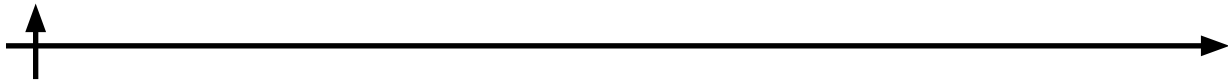


Table 2. Maturity level of the process management at "Communication and Radio Navigation" (aspects: awareness, distribution of responsibility, action, style, teamwork, attention to customers)

	P-1	P-2	P-3	P-4	P-1	P-2	P-3	P-4
Awareness	Company bosses recognize the need to improve operational efficiency, but have little understanding of the benefits of processes	At least one member of senior management is well versed in the concept of business processes and knows how it can be used to improve efficiency	Senior management perceives work in the company as a set of business processes and knows what needs to be done to improve efficiency	Management sees its own work as a single process, and business process management is perceived not as a project, but as a way of doing business in the company	85	80	60	18
Distribution of responsibility	Processes are implemented by middle managers	A member of the management team takes responsibility for implementing the processes	All members of senior management support the process implementation program. Many employees help with the redesign of business processes	Employees are excited to work in a new process-oriented environment and are willing to take leadership roles on new projects	85	70	15	0
Actions	A member of the management team supports projects to improve the company's performance	Top management has set a goal for the company to take customer service to new levels	Members of senior management work as a team, they manage the company through processes and actively participate in the process approach implementation program	Senior management members build on processes to do their own work, conduct strategic planning, and set new performance improvement goals	90	80	30	13
Style	A shift from an authoritarian, hierarchical style to open collaboration has begun within the leadership ranks	Management representatives managing process implementation are fervent advocates of process-based business transformation	Senior management representatives assigned responsibility for process implementation to process managers and empowered them with the necessary authority	Management directs processes by influencing and setting benchmarks to strive for, rather than by directives from above	90	45	10	0
Teamwork	People only come together as a team when a project is in progress	Cross-functional teams are constantly working on efficiency improvements	Teamwork is common among process participants and managers alike	Working on the same team with customer and supplier representatives is commonplace in the company	50	10	0	0
Attention to customers	Many people have heard about the importance of paying attention to customers, but few realize what those words mean	Employees understand that the purpose of their work is to create special value for the customer	Employees understand that customers require high quality products and perfect service	The Company cooperates with partners to improve the quality of customer service	95	95	80	65

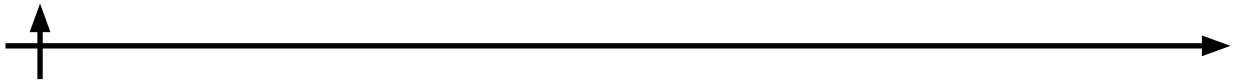
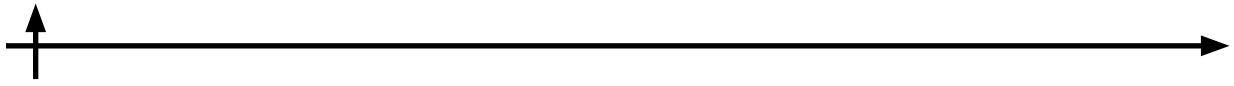


Table 3. Assessment of maturity level of the process management at "Communication and Radio Navigation" (aspects: responsibility, attitude to change, people, methodology, business process model, responsibilities, work coordination)

	P-1	P-2	P-3	P-4	P-1	P-2	P-3	P-4
Responsibility	Responsibility for results lies with managers	Private employees are also beginning to be held accountable for the results of processes	Employees feel accountable for the performance of the entire company	Employees believe their goal is to serve customers to the highest standard and achieve greater company efficiency	90	70	15	0
Attitude to change	Many managers are beginning to accept the need to make small changes in the way the company operates	Employees are ready for major changes in the way they do their work	Employees are ready for major changes at all levels of the organization	Employees realize that change is an integral part of the company's work and are completely comfortable with it	90	40	18	0
People	Several people in the company are convinced of the effectiveness of the process approach	The company has specialists trained in process redesign and implementation, change management methods	Business process specialists have skills in implementing large-scale projects and experience in business transformations	The company has quite a few specialists in the field of process redesign and implementation, change project management	80	30	10	0
Methodology	The company uses one or more methodologies for executing programs and conducting step-by-step process improvements	Process design teams can utilize a business process-based transformation methodology	The company has developed and approved a BP redesign process, and it is integrated with business process improvement standards	Process management and process re-engineering are becoming key elements of the company's system of work	35	19	0	0
Business process model	Several business processes have been defined in the company	The company has developed and approved a complete business process model	The business process model includes each employee, and on its basis the priority of projects is established. In the company's information systems integration model	The business process model provides the ability to collaborate with suppliers and customers. Management uses the model in developing the strategic planning plan	85	50	5	0
Responsibilities	Department managers are responsible for productivity in their area, project managers are responsible for improving efficiency	Process managers oversee the implementation of their processes and the steering committee is responsible for the execution of business process implementation projects	Process managers are responsible for ensuring efficiency	The Business Process Council is the main governing body; implementers are jointly responsible for performance	95	40	15	0
Work coordination	One or more work groups use their own methods to improve efficiency	An informal coordinating body manages the change program and a steering committee allocates resources for business process redesign projects	The company has formalized a business process implementation department headed by a business process director	Process managers work with their counterparts at buyer and supplier companies to improve collaboration efficiency	65	5	0	0



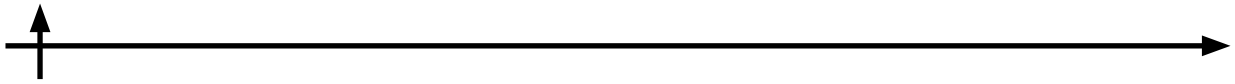
In general, it can be stated that at the moment the analyzed company is between the first and the second maturity level. The management is convinced of the effectiveness of the process approach, they are aware of the need to make changes in the firm's work so that it can be as customer-oriented, flexible and able to respond quickly to the challenges of the external environment.

However, in order for the company to reach a new level of maturity, the management needs to convey its conviction to all employees, create a logical and understandable concept of process approach implementation. It is also important to create a corporate culture that will encourage staff to work as a team, develop their involvement in the company and instill responsibility for the results of its work.

The next step may be the formation of a special unit (process office or competence center), which will play a key role in the organization and management of continuous improvement of business processes through process management. If the company provides conditions for accumulation and utilization of knowledge and experience of structural units in process management, then it will gain significant advantages in relation to its closest competitors, as it will be able to promptly manage business processes and ensure their continuous improvement to increase the efficiency and effectiveness of the entire firm's activities.

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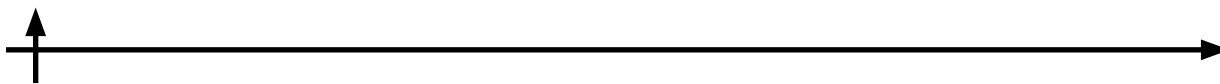
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Статья поступила в редакцию 05.09.2023; одобрена после рецензирования 08.09.2023; принята к публикации 09.09.2023.

The article was submitted 05.09.2023; approved after reviewing 08.09.2023; accepted for publication 09.09.2023.