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Business Process Management based on the project and knowledge perspective

ABSTRACT

New technological solutions require an organization to adapt constantly to changes in a dynamic environment. More and more enterprises implement Business Process Management, both at the strategic and operational levels, taking into account the project perspective based on knowledge resources. The aim of the article is to show the usefulness of building links between processes and projects based on knowledge resources in dynamic changeable technological circumstances based on research conducted in Poland. The approach guides Business Process Management activities by supporting organizations in identifying opportunities from business and technology trends and integrating them into business processes with novel value propositions.

Keywords: business processes management, project, knowledge

JEL Classification: L22, O31

Introduction

Contemporary markets undergo a variety of dynamic changes [Bukłaha, Cabała, 2022], including, among others, the fourth technological revolution, which consists of development of technologies in the field of artificial intelligence (AI), process automation (Robotic Process Automation, RPA), and cloud computing [Bajdor, Dziembek, 2023; Bouhdidi, 2022; El Ghalbzouri, Wodecki, 2020; Gzik, 2023]. The authors of the paper assume that the aforementioned revolution is based on three general fields: conducting innovative projects, utilization of required resources, and applying the process approach to technology and business. The presented fields compose the business process management (BPM) based on project and knowledge [Bitkowska, 2019], which is an exemplification of current conditions – knowledge as a crucial resource, project as a unique complex undertaking, process as a way to increase efficiency and effectiveness. The factors influencing the development of the process and the project approach at the same time also include: a strong focus on the needs and expectations of customers, their impact on the course of processes, variability and configuration of processes depending on the dynamic environment, advanced technologies used to implement and improve processes [Bizarrias, Câmara, 2023; Di Ciccio et al., 2019; Malinova, Mendling, 2018; Rosemann, vom Brocke, 2015; vom Brocke, Zelt., Schmiedel, 2016].

Business Process Management Study 2023 reported that 68% of surveyed experts estimate that the future relevance of Business Process Management (BPM) in their companies will “increase” or “significantly increase”. Moreover, well-established BPM helps companies carry out their processes faster, more cost-effectively and have them be of higher quality. The digitalization and automation of processes often minimize errors, increase efficiency, help to meet deadlines, add transparency, shorten cycle times, and reduce manual workload. Overall, this ideally leads to better compliance, higher value creation and employee satisfaction, and ultimately to higher customer satisfaction [*BPM Study, 2023*]. Moreover, companies use software to support their BPM initiatives, such as Business Process Management Systems (BPMS). These help to adapt processes quickly to changing requirements and respond flexibly to new business demands. BPM tools create transparency of the interdependencies across assets and thus provide the basis in the company for both strategic decisions and operational actions.

The aim of the paper is to highlight the new perspectives of BPM. In Section 2 we provide a brief literature review of BPM and Section 3 showcases research methods. Section 4 provides results derived from our research. Section 5 discusses the results in context of another research. Section 6 is a summary of this study and includes conclusions and practical implications.

New perspectives of Business Process Management

Changes taking place in the environment of enterprises require process and project approaches based on knowledge resources. Processes in the enterprise coexist in a natural way and cooperate with projects and knowledge – they are complementary to each other. At the same time, issues related to processes and projects as well as knowledge are treated separately in the subject's literature. The issues of projects and processes are, to a certain extent, common, complementary to each other, but still, in the literature and in practice, issues related to processes and projects are treated separately [Nowosielski, 2017, p. 68]. In the literature on the subject issues related to processes and projects as well as knowledge are discussed in various aspects, but most often in isolation, although selected relations between processes and knowledge or projects and knowledge are also presented [Helbin, T.; Szelągowski, 2019; Van Looy, 2021; Wyrozębki, 2014, p. 18].

Changing environmental conditions require a new approach in operation of enterprises, based on the context of the process and project approach. BPM is the leading one due to:

- difficulties in linking the organization's strategy with the objectives of processes;
- the need for a stronger focus on efficiency, quality, and agility of processes [Dabaghkashani, Hajiheydari, Haghghinasab, 2012, p. 725];
- the lack of appropriate integration mechanisms and the resulting lack of synergy between processes and the need to automate and robotize processes [Szelągowski, 2019];
- striving to optimize activities as part of individual processes (sub-optimization) without linking to other processes, which reduces efficiency on the scale of the organization [Brajer-Marczak, Nowosielski, 2016];
- the need to optimize processes based on knowledge resources and to build a relationship between knowledge management and process management [Paschek, Ivascu, Draghici, 2018, p. 182; Zhu, 2015];
- too much formalization in processes, which in some cases turns out to be an obstacle in the pursuit of agility in processes [Dabaghkashani, Hajiheydari, Haghghinasab, 2012];
- the need for humanization, larger focus on people (employees) rather than precisely defined, formalized processes;
- increasing the demand for analysis, process design, and improvement in real time as well as the exchange of knowledge and experience between process teams and process owners;
- the need to measure and control processes, apply new IT solutions or process mining methods, due to the fact that processes are insufficiently measured and controlled in enterprises [BPM Study, 2023; Garcia, Harmon, 2020];
- the need to redesign processes dedicated to an external customer using a modern approach (e.g. customer journey, customer experience) with the use of modern platforms (via digital channels, customer portals, internet platforms, service applications) and modern project management methods.

Development of knowledge-based processes required application of the project approach, based on appropriate knowledge resources. Projects are no longer just occasional, individual events in the organization's activities, but are a permanent component that occurs on a continuous basis in large numbers as the so-called project portfolios. A reasonable solution from the point of view of strategic goals and assumptions, as well as operational ones, is Business Process Management, combining (integrating) processes, projects, and knowledge, bringing synergistic effects from the perspective of the functioning of modern enterprises [Jeston, Nelis, 2014; Malinova, Mendling, 2018; Ubaid, Dweiri, 2020).

There are many relationships between processes, projects, and knowledge. When analyzing the similarities between processes and projects, it is necessary to indicate their many common parts e.g. they have defined goals which enable the assessment of their implementation, they are documented, they are performed in a planned, monitored, and controlled manner. Apart from the same attributes, processes and projects are determined by limited resources and planned and controlled: goals, principles, and rules of operation established using measurement criteria (time, quality, cost, scope of work). In addition, processes and projects are horizontal to the organizational structure, are strongly goal-oriented, and complex. The criteria for evaluating processes and projects in terms of time, quality, and costs are important. Projects are used in the process of implementing the assumptions of the strategy into the process model of an enterprise and also usually as part of basic processes and when some of the activities of key processes for the enterprise are implemented with the help of projects. Both processes and projects assume teamwork – process teams and project teams are concerned with the best possible use of the skills of various employees in various functional areas of the company.

The contemporary approach to projects largely takes into account knowledge resources [Wyrozębski, 2014, p. 140], because the implementation of projects requires advanced interdisciplinary knowledge (due to the complexity and innovation of projects). This knowledge is dispersed (due to the task and temporary nature of the team; project knowledge), it must be described at an appropriate level of detail to ensure its transferability between projects (due to the complexity and uniqueness of projects), and the project team should be the primary object of the project knowledge management processes. Project knowledge represents a management approach – a project manager's point of view focused on project management processes. According to the authors, this is the knowledge of the activities in the project. Project knowledge is the domain of the project team members regarding the information required to complete their assigned tasks in the project, including project reporting and documentation. Knowledge gained from projects means knowledge resources and experience remaining after their implementation, which can be consolidated in the form of project experiences and good practices.

Knowledge management in an organization is closely related to process management because knowledge management can be treated in terms of processes. It is an approach to organization management focused on the use of knowledge in order to increase the effectiveness and efficiency of the organization's operation in all areas and processes of its functioning

and implemented by means of a specific system of processes and instruments, in a continuous and sustainable manner [Martínez-Martínez et al., 2018]. The use of this concept enables the improvement of the competitiveness of enterprises, continuous improvement, and development. Identification, acquisition, presentation, and documentation of knowledge are not independent tasks, but are carried out within economic processes. Team cooperation helps in raising qualifications. In turn, the implementation of knowledge management stimulates the creativity of employees and supports internal communication. Building a process organization using the best practices and guidelines minimizes the risk of failure of the organization improvement and knowledge management implementation projects.

The literature on the subject points to the relationship between Business Process Management and knowledge management, where knowledge is used at the strategic level as a generator and accelerator of value creation and process improvement [Berniak-Woźny, Szelągowski, 2021; Bitkowska, 2020; Zhu, 2015]. Moreover, knowledge is a key element of each process, and in companies where knowledge and processes are treated separately, they quickly become obsolete and will not be competitive with other companies, which allow teams to have a synergistic approach to knowledge management and process management [Zhu, 2015]. The concepts of knowledge management and process management show many dependencies, therefore, it is important to look for a way to integrate them in order to achieve the synergy effect. The problem of augmenting process mining with common sense and domain knowledge is treated as one of the most important current BPM problems [Beerepoot, Di Ciccio, Reijers et al., 2023].

Business process management is oriented towards cognitive processes used to create and modify knowledge and requires a combination of creative, analytical, and practical abilities/skills in relation to employees. Thus, there are visible elements of knowledge management in process management. Moreover, in accordance with the principles of knowledge management, the previous experience of process management should be used in future processes and in new situations, thus creating a learning organization. In this context, the approach of intelligent process management (BPI) appears. A company with implemented process management supports the development and learning of organization and all their employees. Contemporary process organizations pay more and more attention to researching and developing employee creativity or the ability to work in a team. Shaping a culture that creates good cooperation with clients, teamwork, negotiation and persuasion skills, and supporting the development of other employees by sharing knowledge and experience requires many actions. The benefits of implementing a knowledge management system concern, *inter alia*, improving innovation, creating and using new ideas, making knowledge available to the right people at the right place and time, facilitating the search for and application of specialist knowledge and know-how, supporting cooperation, communication, knowledge sharing, continuous learning, and improvement of both individual employees and the entire organization. Knowledge management can be characterized by the following processes related to knowledge: locating, acquiring, sharing, creating, developing, preserving, and using [Probst, Raub, Romhardt, 2000]. Walczak proposes a process-based approach to knowledge management,

as it is a modern concept of strategic management of a modern enterprise, aimed at creating the value of the organization on the basis of skillful acquisition and use of all resources of organizational knowledge and building intellectual capital. A natural element of knowledge management in an organization should be the constant development of knowledge and continuous learning of employees. Improving the knowledge potential should be constantly supported by the management of the organization. There is a need in the enterprise for data and information as well as for explicit and implicit knowledge, which is related to the process management system [Mohamad, Jayakrishnan, Yusof, 2022]. Business processes are used to achieve the goals of the organization, and knowledge and data are developed in accordance with these goals used in business processes, at the same time constituting their output. Thanks to the organization's learning process, based on continuous selection, collection, and analysis of knowledge resources obtained during the implementation of business processes, both knowledge development and process improvement occur.

Research methods

The analysis of BPM is presented from the project and knowledge perspective. The analysis of the current state of knowledge and the issues of business process management allowed us to identify the methods, tools, and approaches used in enterprises in response to contemporary challenges of the environment.

The analysis of the literature on the subject is the 2020 research conducted among 110 process-oriented enterprises in Poland. The analyzed companies were classified into the following groups: small enterprises (10-49 people, 30.72%), medium-sized enterprises (50-249 people, 26.34%), and large enterprises (250+ people, 42.94%). Another important criterion is the dominant industry of the companies, engaged in production (16.08%), logistics (8.99%), energy (3.95%), banking (15.25%), transport (7.34%), education (3.95%), public administration (8.17%), IT (9.91%), telecommunications (7.91%), insurance (4.52%), consulting (2.82%), healthcare (5.08%).

The main research question (RQ) was: What is the state of implementation of the method of transformation towards BPM from project and knowledge perspectives? The intention was to fill the existing knowledge gap in this area and present empirical material to assess the validity of the solutions presented in this article. The main research was carried out with the use of a questionnaire, which was addressed to specialists in the field of BPM. The survey instrument was constructed based on the literature review.

The obtained research results were analyzed, taking into account selected categories appearing in the record, such as the size of the enterprise or the scope of activity. The presented conclusions will constitute guidelines for the proposal of further research directions and will present the trends taking place in process-oriented companies. The research goals adopted in work required selecting a research method and the construction of a research tool allowing

for the collection of empirical material. The research used the method of a diagnostic survey using the questionnaire technique, where the research tool was a questionnaire developed for this study.

Research results

The research conducted in process-oriented organizations concerned the area of cooperation between processes-projects and knowledge. The key solutions in the scope of process management in the reviewed enterprises concern the strategic area (Table 1). The most important issue is to formulate strategic assumptions (49.15%) and it is also among the most important actions emphasized in large, medium-sized, and small enterprises. Another crucial result in the strategic domain for all the enterprises is to define the assumptions for processes in connection with strategic assumptions (43.68%), which was emphasized by the respondents from small and medium-sized enterprises. For large enterprises, and important result in the scope of strategic management of processes, was the design and implementation of process architecture (50%), which was indicated by more than a third (37.12%) of all the surveyed enterprises. For small enterprises, another important result of strategic management of processes was also the implemented system for evaluating and motivating employees (30%), however, it was indicated as important for less than a fifth of the respondents from the medium-sized enterprise category (17%) and approx. a third of the large enterprise category (32%).

Table 1. Strategic management of processes (%)

Results including	Total	Small	Medium-sized	Large
Designing and implementing process architecture	37.12	19	24	50
Defining the mission, vision, strategy, strategic goals	49.15	45	44	55
Defined processes (strategic goals, metrics, products, scope, resources, rules)	43.68	35	42	45
Implemented organizational structure and organizational regulations	25.16	25	19	25
Implemented principles of managing an organization, recommendations of process owners, manner of process management	16.95	16	14	20
Implemented employee assessment and motivation system	30.51	30	17	32

Source: own study.

The results of process management structure research analysis are presented in Table 2. The process refining phase was declared as implemented by over half (56.59) of the surveyed companies, which proved significant for both large and small enterprises. Process controlling also proved to be a significant phase of managing processes, indicated as such by more than half (51.41%) of the surveyed organizations, while process identification was emphasized by 48.20% of the respondents. The least important phase in the structure of process management was process modelling, applied in 44.37% of all the surveyed companies, however, for more

than half of medium-sized enterprises this phase was named most important. We can, therefore, clearly see the differences in how process management phases are perceived depending on the size of a particular enterprise.

Table 2. Business process management structure (%)

Business process management phases	Total	Small	Medium-sized	Large
Process identification	48.20	36	44	55
Process modelling	44.37	35	52	49
Process controlling	51.40	45	39	53
Process refining/process optimization	56.50	49	47	67

Source: own study.

Process-oriented companies make practical use of knowledge management and project management concepts (Table 3). The concepts mainly used in companies include project management (48.59%) and knowledge management (38.98%). Project management is the most popular with large (58%) and medium-sized (47%) enterprises. Medium-sized enterprises declare the same level of interest for both project management and knowledge management (47%). Interest in knowledge management is declared by a similar number of respondents from small and medium-sized enterprises (below 40%).

Table 3. Management concepts/methods used in the organizations (%)

Management concepts/methods used	Total	Small-sized	Medium	Large
Project management	48.59	38	47	58
Knowledge management	38.98	35	47	38

Source: own study.

The companies surveyed see significant advantages in the use of knowledge in individual stages of process management (Table 4).

Table 4. Advantages of stages of implementing process management with the use of knowledge-process identification, modeling, and optimization (%)

	Process identification	Process modelling	Process monitoring	Process reporting	Process refining
Strongly agree	36.72	20.90	27.12	26.55	27.12
Agree	33.90	49.72	37.85	38.42	36.16
Hard to say	11.30	10.73	14.12	14.69	18.08
Disagree	4.52	5.65	3.39	2.26	4.52
Strongly disagree	1.13	0.56	1.69	2.82	0.56

Source: own study.

The process organizations surveyed pointed to the use of selected elements of knowledge management (Table 5). Most organizations consider knowledge and process experience sharing to be important areas of activity and put it into practice (55.37%). The biggest problem is to build awareness connected with the use of knowledge in processes (18.08%).

Table 5. Knowledge management elements (%)

Knowledge management elements	Total	Small	Medium-sized	Large
Sharing knowledge/process experience	55.37	51	56	59
Proper communication and information flow in the process team	29.38	26	28	33
Ability to train employees/managers in the scope of analyzing, redesigning, and refining processes	23.16	18	8	34
Building awareness connected with the use of knowledge in processes	18.08	9	19	25
IT systems supporting knowledge management	21.47	14	25	26

Source: own study.

Table 6. Solutions enabling process changes (%)

Solution	Total	Small	Medium-sized	Large
Changes to processes are implemented through a project approach	47.46	49	42	47
Changes to processes are aimed at raising process effectiveness from the perspective of the assumed strategy	44.63	38	53	46
Changes to the process may be reported by any employee making use of knowledge resources	47.46	49	42	47
Changes to the process may only be reported by a manager	28.86	28	31	20
There is an appropriate cell/team/position responsible for process changes	28.81	18	28	38
There is an internal knowledge portal concerning process management in an organization/managers have received relevant training	25.42	17	28	32
Changes result from robotization and automation	28.73	25	17	26
Information on implementing process management was provided on an ongoing basis	21.47	14	25	26

Source: own study.

A significant stage in the context of constructing the project-knowledge in business process management includes changes in the processes – 47.46% of employees of the surveyed organizations may report any of and all changes concerning processes, and 44.63% emphasize that the purpose of the changes/refinement is to increase process effectiveness (accounting for the selected strategy). It is quite important since process management fits into the strategy pursued by the organizations (Table 6). Organizations facilitate an increase in employee creativity by proposing changes in processes, thereby supporting teamwork and employee responsibility for the implemented processes. Among the surveyed companies, 28.81% opted for creating a cell, team, or position responsible for refining processes. A smaller percentage (24.86) of the surveyed organizations claim that changes concerning the process are only to be reported by the manager.

Discussion

The conducted research concerned the implementation of business process management in the context of the projects and knowledge. Referring back to the research we can ascertain that:

- the surveyed organizations use a combination of elements of the process approach, project approach, and knowledge;
- in enterprises, an increased project approach is observed, the number of implemented projects and process initiatives implemented through projects is intensifying;
- the project and knowledge perspective of BPM enables more efficient implementation of changes. The main initiatives focus on process projects, a trend can be observed in enterprises related to the intensification of the project approach in the activities of enterprises and organizations.

Similar conclusions are drawn from another research conducted in Poland and elsewhere. According to *Business Process Management Study 2023*, almost half of organizations surveyed (43%) positions business process management as a strategic element of management [*BPM Study, 2023*]. More than half of the companies (55%) take a systematic approach to modelling and updating their business processes, which is significant mainly in the context of process optimization (73%), document management (57%), quality management (54%), as well as change management (31%). Furthermore, the *BPTrends Survey 2020* indicates that 72% of all the companies surveyed say that BPM practices and technologies have helped improve their organization's efficiency, versatility, and customer satisfaction [Garcia, Harmon, 2020]. Companies pursue multiple initiatives and process projects such as: Major Process Redesign projects (40%), Development of an Enterprise Process Architecture (39%), Coordinating Enterprise Process Change efforts (28%); few however, indicated projects connected with knowledge management (11%). The results are consistent with conclusions drawn from the survey that the organization intensifies the number of project processes, however, none were indicated in correlation with knowledge management initiatives.

In summary, companies see the potential of business process management and apply them in practice in conjunction with the project and knowledge approach. Another challenge is the approach towards knowledge management in connection with process and project management. Many companies put an increasing practical significance on data management and data driven company approach, which in turn leads towards a more advanced knowledge management [McKinsey & Company, 2022]. This view shall require further exploration at a theoretical, research, and practical level, taking account of various sectors and geographical regions.

Summary

Making managers aware of the existence of relations concerning the three mentioned factors can significantly affect the functioning of enterprises and the implementation of the assumed strategic goals. It will be crucial to define the relationship between the three interdependent categories and the strength of their interaction. The analysis of the literature on the subject indicates the need for further scientific and research exploration in this subject. The issues of interoperability of process management, project management, as well as other knowledge management concepts require further research and broader discussion. There is also a lack of broader analyses on the ways and methods of integrating process management with other management concepts, including project management and knowledge management. This area requires further in-depth literature and empirical research. The discussed issues of business process management in the context of emerging new challenges to contemporary enterprises are worth further scientific exploration and require a new look at the methods and tools used in enterprises. One of the directions for future works is the business process management model, which will integrate all components of the projects and knowledge.

The article's findings may still offer astute insights to researchers and practitioners who wish to consider more information regarding the importance of -project-knowledge process and through the business process restructuring.

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