



Publisher

<http://jssidoi.org/esc/home>

MANAGEMENT OF SCIENCE AND TECHNOLOGY PARKS IN POLAND*

Magdalena Raczyńska¹, Krzysztof Krukowski², Dorota Sobol³, Wiesława Lizińska⁴

^{1,2,3,4} University of Warmia and Mazury in Olsztyn, ul. Oczapowskiego 2, Olsztyn 10-719, Poland

E-mails:¹ magda.raczynska@uwm.edu.pl (Corresponding author); ² kkruk@uwm.edu.pl; ³ dorota.sobol@uwm.edu.pl
⁴ wieslawa.lizinska@uwm.edu.pl

Received 12 May 2025; accepted 25 August 2025; published 30 December 2025

Abstract. The aim of the article is to present the specific nature of managing Science and Technology Parks (Parks, STPs) in Poland in the context of using the Business Process Management (BPM) concept there and to identify key organizational factors that facilitate or impede the implementation and development of BPM in these entities. A quantitative research approach was used, employing a structured questionnaire based on the tool presented in the PRI method, adapted to the specific context of Polish STPs. Data were collected from 56 respondents across 28 Parks. Statistical analyses, including Pearson's correlation, were applied to examine the relationships between the advancement of using BPM (i.e. process maturity) and selected organizational characteristics. The results show that most STPs are positioned at intermediate process maturity levels (levels 2 and 4), while only a small proportion reach the highest, 5th level. A significant positive correlation was found between the number of tenant enterprises and process maturity, indicating that organizational complexity drives the need for formalized processes. Other variables, such as year of establishment and employee count, showed no significant effects. The findings provide managers of STPs with actionable insights, including the importance of using maturity models for self-assessment, investing in ICT systems to support BPM and strengthening HR strategies, particularly to equip employees with competencies needed in dynamic and flexible organizational settings. This research contributes to the relatively scarce literature on BPM in STPs, particularly within the Central and Eastern European context. It offers novel empirical evidence on the factors influencing process maturity and delivers practical recommendations for managers and policymakers aiming to enhance process-based management in innovation-driven organizations.

Keywords: Business Process Management; process maturity; a Science and Technology Park; STPs' characteristics; managing STPs

Reference to this paper should be made as follows: Raczyńska, M., Krukowski, K., Sobol, D., Lizińska, W. 2025. Management of science and technology parks in Poland. *Entrepreneurship and Sustainability Issues*, 13(2), 10-23. <http://doi.org/10.9770/t7727827999>

JEL Classifications: H54, L26, L38, M13

1. Introduction

Although the concept of Science and Technology Parks (STPs, Parks) has gained worldwide popularity, there is still no universally accepted definition that captures their full scope, functions and organizational characteristics (Hobbs et al., 2017; UNIDO, 2021). For the purposes of this paper, we adopt the definition provided by the International Association of Science Parks and Areas of Innovation (IASP), which describes STP as an organization managed by a specialized team, with the primary aim of enhancing community welfare by fostering innovation and competitiveness among its members. Building upon this definition, it can be assumed that STPs provide advanced and modern infrastructural mechanisms to facilitate the transfer of research findings into the economic sector. Their activities foster the emergence of knowledge spillovers and

* This research was funded by the Faculty of Economic Sciences of the University of Warmia and Mazury in Olsztyn, Poland.

contribute to the intensification of economic growth at both regional and national levels. Thus, STPs play a pivotal role in creating an environment conducive to knowledge exchange, provide access to high-value-added resources and initiate and strengthen cooperation among entities operating within their structures (Martinez-Cañaz et al., 2011). Science and Technology Parks should be distinguished from the Technology Incubators. While Technology Incubators focus on supporting early-stage, mainly startup, technology-driven businesses with tailored resources and guidance, Parks, as previously mentioned, carry out a broader range of activities (Mohamed et al., 2024; Czaplińska & Romanowski, 2024).

Modern Parks are increasingly required to go beyond their traditional roles, offering new services and adopting innovative business models that support the emergence of new industries and sectors (IASP 2022; Lizińska et al., 2024; Xie, 2024; Forés & Fernández-Yáñez, 2024; Noronha & Pillai, 2025). In this evolving landscape, there is a growing recognition of the relevance of modern management concepts, including Business Process Management (BPM). BPM, which gained prominence in Poland in the 1990s, involves structuring organizations around processes that are aligned with strategic goals and customer expectations (Bitkowska & Łukaszczuk-Walter, 2022). A core concept within BPM is process maturity, which reflects the extent to which an organization has adopted and developed process-oriented management practices. As noted by Brajer-Marczak and Gębczyńska (2020), moving from lower to higher levels of process maturity first improves the performance of individual processes, then enhances business functions and eventually leads to transformation at the organizational level. Numerous other authors also point out the correlation between increasing process maturity levels in organizations and their performance outcomes, while empirical evidence is given here by e.g., McCormack and Johnson (2001), as well as Kohlbacher and Reijers (2013). Accordingly, it may be inferred that attaining higher levels of process maturity contributes to increased customer satisfaction, enhanced product quality, a more favorable organizational climate, a reduction in internal conflicts and greater coherence and alignment in organizational activities (McCormack & Johnson, 2001; Kohlbacher & Reijers, 2013). This suggests that pursuing process maturity may constitute a valid strategic direction for the development of Parks, enabling these entities to operate with greater flexibility, efficiency and stronger focus on value creation. However, studies on the application of BPM in STPs remain limited, and a clear research gap persists regarding the assessment of their process maturity. It is therefore justified to undertake in-depth investigations to determine the extent of BPM adoption in Parks and to identify the factors that influence the attainment of higher levels of process maturity of STPs.

Thus, the aim of the research presented in the paper was to examine the level of process maturity of Science and Technology parks in Poland and to identify the factors that foster or hinder the development of Business Process Management in those entities.

The structure of the article includes a literature review on BPM and STPs, a description of the applied research methodology, the presentation and analysis of empirical findings and their discussion. The paper concludes with recommendations for further research and suggestions for implementing process-oriented approaches in the management of Parks.

2. Theoretical background

Business Process Management, as a comprehensive idea, became widespread in both academic and business practice at the turn of the 1980s and 1990s, that is, in the period that in management science is often referred to as the "*era of reengineering*". Although its origins can be traced back much earlier, i.e. when the representatives of the Scientific Management movement aimed their research efforts at developing methods for effective process management and even earlier - by Smith, who in his 1776 work *The Wealth of Nations* presented an analysis of the production process of pins and nails, but it was during the "*era of reengineering*" period that Hammer and Champy (1996) shaped and formalized the concept by giving it a defined theoretical and practical framework (Hammer & Champy, 1996; Lusk et al., 2005; Senkus et al., 2021).

It is impossible to consider BPM without first defining the essence of a business process and outlining the key assumptions underlying this concept. The literature offers numerous definitions of the term *business process*, and some of the first consistent clarifications emerged during the rise of the BPR movement. For

example, Pall (1987) described a process as *the logical organization of people, materials, energy, equipment and procedures into work activities designed to achieve a specific “end” result*. As previously mentioned, Hammer and Champy (1996) defined the construct as *a set of activities that uses one or more kinds of input and creates an output that has value for the customer*. In later years, processes began to be defined with a lower level of generality (Senkus et al., 2021). For instance, the Object Management Group - the creators of one of the most widely adopted organizational process maturity models - described a process as *a defined set of business activities representing the steps required to achieve a business objective*. It includes the flow and use of information as well as other resources (Object Management Group, 2011). Regardless of the adopted definition, organizations establish processes to ensure the achievement of their business objectives while complying with relevant laws and regulations.

The concept of BPM has been also conceptualized and defined in numerous ways. Moreover, Nowosielski (2008) and Silva et al. (2022) argue that it should be viewed more broadly than merely as a concept, advocating the perspective that it is, in essence, a management orientation or philosophy. A similar view is shared by Bitkowska (2021) and Bandara et al. (2021a), who indicate that the concept in question can be regarded as a holistic and comprehensive approach to managing organizations. This does not change the fact, however, that the literature contains numerous attempts to define BPM. Most of the existing clarifications refer directly to the management of processes carried out within organizations, treating processes as a key aspect and the core of the concept. For example, Brilman (2002) defines BPM as *a systematic evaluation of processes and their outcomes, aimed at maintaining their functioning and making adjustments when the achieved results deviate from the standards*, while Dumas et al. (2018) emphasize that one of the fundamental principles of BPM is the definition and analysis of business processes, which includes mapping the activities involved, identifying potential bottlenecks or other inefficiencies and determining how the process can be improved - that is, optimized. Thus, one of the primary goals of implementing BPM in organizations is to develop a management model that ensures a sustainable competitive advantage and enables improved performance across various functional areas (Reijers, 2021).

Considering the research topic addressed in the article, particular attention should be paid to the characteristics of process maturity. It refers to the extent to which an organization's processes are defined, managed, measured, controlled and continuously improved over time, reflecting how well an organization understands, governs and optimizes its internal processes to achieve strategic objectives (Hammer, 2007). With the increasing complexity of managing modern organizations and growing expectations from their stakeholders, tools that enable professionalization and alignment of internal operations are gaining importance (Khorshid et al., 2023). In this context, the concept of process maturity emerges as a critical framework for assessing internal organizational capabilities. Moreover, it not only allows for diagnosing the current state of operations but also supports development planning, the implementation of IT systems and the cultivation of a culture of continuous improvement (Paulk et al., 1993; Rosemann & de Bruin, 2005; Fuschi & Galiyeva, 2022).

Organizations can measure their process maturity using various models and tools, which provide insights into the current state of their processes and guide improvement efforts (Mielcarek, 2020; Gökalp, 2020). Thus, following Brajer-Marczak (2017), process maturity can be also understood as the degree to which the guidelines outlined in a selected process maturity model have been implemented within an organization. The attainment of successive levels of process maturity is influenced by a range of factors. Implementation and development of BPM in organizations is primarily determined by technological, individual, organizational, social and strategic factors. Among the technological determinants, the most indicated are not only the level of use of information and communication technology (ICT), but also its perceived usefulness and ease of use (Eikebrokk et al. 2011). Additionally, the presence of appropriate ITC systems supporting processes, such as workflow systems or tools for monitoring process performance indicators, is crucial for achieving BPM goals (Pyłacz, 2022). Individual factors include, among others, self-assessed efficacy in process modeling and employees' overall process awareness. Both variables influence attitudes toward BPM and are linked to the willingness to implement changes (Eikebrokk et al., 2011). In the public sector, professional experience and the scope of an employee's responsibilities also prove to be significant, as they shape the individual's perception of BPM culture (Ahmad & van Looy, 2021; Kregel et al., 2021). Organizational determinants include the size of the organization, which affects the availability of resources for process implementation, as well as the degree of formalization of the process owner role and the clarity of process objectives (Pyłacz, 2022). Dijkman et al.

(2016) present a strong argument regarding the impact of organizational size on process maturity. According to their research, larger organizations are better positioned to implement and develop BPM due to their greater availability of resources. Moreover, the complexity inherent in large-scale operations creates a pressing need for clearly defined and well-structured processes, as a lack of formalization can lead to inefficiencies and management challenges. Additionally, organizations with a higher number of employees tend to document their business processes more thoroughly and exhibit a greater degree of standardization across various departments (Dijkman et al., 2016; Vijayakumar, 2023). Organizational determinants may also include factors such as the age of an organization. Organizational life cycle theories suggest that as organizations age, they tend to move from informal, innovative structures toward more formalized, stable and process-oriented ones. This progression aligns with increasing levels of BPM maturity. Studies by Quinn and Cameron (1983), as well as others, support a potential positive relationship between organizational age and process maturity. The level of process maturity also depends on the presence of an organizational culture that promotes, among others, responsibility, collaboration and customer orientation (Glambek et al., 2023; Aljlal, 2024). However, in public administration, additional limitations arise here, such as regulatory rigidity and the dominance of bureaucratic culture, which hinder the implementation of flexible BPM models (Espinheira & Almeida 2021; Raczynska & Krukowski 2022). In terms of social determinants, subjective norms, namely the expectations of supervisors, co-workers and clients, play an important role by exerting pressure on employee behavior (Eikebrokk et al., 2011; Frank et al., 2020). Finally, among strategic determinants, the alignment of organizational strategy with process architecture and a strong orientation toward both external and internal customers are emphasized. In the public sector, this aspect requires particular attention, as service recipients often simultaneously act as co-creators of value (Kregel et al., 2021). The above determinants do not constitute an exhaustive list of the conditions necessary for the implementation and advancement of BPM within organizations. Rather, the effectiveness of BPM is contingent upon a multifaceted interaction of technological, human, cultural and structural factors, the significance of which is context-dependent and varies across organizational settings (Chen et al., 2021).

Process maturity can be assessed for any type of organization or industry, including Science and Technology Parks. Although the BPM approach is widely applied across both the private and public sectors, its implementation within STPs remains relatively new and underexplored. This underscores the need for in-depth empirical research to better understand the levels and variations of process maturity among Parks operating within diverse cultural and institutional contexts.

The use of BPM in STPs is beginning to attract attention in the literature, however, the topic has yet to receive substantial scholarly focus. In the context of organizational development within these entities, the integration of BPM and Enterprise Architecture (EA) is increasingly recognized as a foundational theme in academic discourse. EA is broadly defined as a strategic and holistic framework that facilitates the alignment of an organization's processes, information systems and strategic objectives (Lankhorst, 2009). It serves not only as a blueprint for organizational structure and technological infrastructure but also as a catalyst for coherence, agility and responsiveness in complex, knowledge-intensive environments. In the context of Parks, EA provides the structural foundation for integrating management processes and technological support systems. This alignment is particularly critical given the multifaceted roles these entities play in fostering entrepreneurship, facilitating technology transfer and supporting startup growth (Correia et al., 2021).

Among tools applied to evaluate and enhance such alignment, process maturity models, notably the Process and Enterprise Maturity Model (PEMM) introduced by Hammer (2007), have gained prominence. PEMM provides a multidimensional framework that distinguishes between process enablers (such as design, execution, ownership, infrastructure and metrics) and organizational capabilities (including leadership, culture, expertise and governance) (Piana et al., 2023). These components collectively facilitate a granular analysis of how well a given organization manages its internal processes and adapts to strategic demands. Empirical studies in Latin America, for example, reveal that while many STPs operate at intermediate maturity levels (typically level 3), there remains significant variability and potential for targeted process improvement (Correia et al., 2021). In response to these findings, Correia and da Veiga (2019) proposed a process-based management model explicitly designed for the Parks. Their model advocates for the structured integration of business processes with customized information systems, grounded in the principles of EA. It also emphasizes the importance of coherence between process workflows and digital infrastructures to support dynamic management and strategic

flexibility. Despite the existence of a few studies addressing the level of process maturity in STPs, the available literature remains limited both in terms of the number of publications and the scope of topics covered. These studies rarely explore the conditions that facilitate the enhancement of process orientation within these entities. Meanwhile, given the significant role that STPs play in economic development, identifying the drivers and barriers to implementing concepts that can support their effective functioning becomes particularly important.

3. Methods

The study aimed at identifying the level of process maturity of Polish Science and Technology Parks was conducted between May and July of 2024. The survey technique employed was a structured questionnaire comprising 16 questions related to various aspects of the Parks' advancement in implementing BPM. The questionnaire was developed based on the Process Maturity Assessment Tool created in 2015 as part of the Institutional Development Planning (PRI) project (Żabiński, 2015). The tool enables the classification of entities into one of five levels of process maturity, with each level described by a set of distinct conditions (criteria). Its important aspect is the application of the cumulative principle, which means that to advance to a higher level of process maturity, it is necessary to fulfill all the requirements of the preceding level. Recognizing that process maturity models offer valuable frameworks for organizations to enhance their processes, it is important to acknowledge that these models are not one-size-fits-all solutions. Therefore, the tool was adapted to the unique contexts of functioning and business needs of the surveyed entities. The questionnaire targeted employees of STPs, with two respondents from each entity.

As a result of the conducted study, 56 correctly completed survey questionnaires were obtained from 28 entities, in which respondents assessed specific statements in terms of their occurrence within the STP. With the total number of STPs in Poland at the level of 34, this results in a return rate of 82%. This provided a basis for determining the level of process maturity of the surveyed Parks.

The STPs under analysis were examined in terms of their size (number of employees), number of tenant enterprises and year of establishment (Table 1). Therefore, the analysis focused primarily on determinants of process maturity related to the before mentioned organizational factors. Most of the Parks represented relatively small-scale institutions, employing no more than 20 individuals, which may indicate a predominantly local or regionally limited scope of operations. A comparable trend is observed regarding the number of tenant enterprises - over half of the Parks accommodated no more than 50 organizations, further suggesting a modest scale of activity. The period between 2001 and 2010 emerges as a particularly dynamic phase in the development of such entities, likely attributable to increased policy and funding initiatives aimed at fostering entrepreneurship during that decade. The limited number of STPs established prior to the year 2000 reflects the relatively recent emergence of this sector. At the same time, the continued establishment of new Parks after 2010 points to a sustained demand for their presence and function within the broader economic landscape.

Table 1. Profile of the examined Science and Technology Parks

Number of STPs' employees				
10 or fewer	11 - 20	21 - 40	41 - 60	61 or more
4 (14,3%)	10 (35,7%)	4 (14,2%)	6 (21,4%)	4 (14,3%)
Number of tenant enterprises in the STPs				
50 or less	51 - 100	101 - 150	151 - 200	201 or more
14 (50,0%)	9 (32,2%)	2 (7,1%)	1 (3,6%)	2 (7,1%)
Establishment year of STPs				
2000 or earlier	2001-2010	2011 or later		
3 (10,7%)	17 (60,7%)	8 (28,6%)		

Source: own work based on the conducted study

Considering the potential for common method bias (CMB), the questionnaire design employed the split-sample approach proposed by Brewer (2006). This method aimed to mitigate CMB by using one group of respondents to assess the independent variable and another to assess the dependent variable. In the presented study, the independent variables, namely the number of employees working in the Park (in persons), the number of tenant enterprises and the year of park establishment, were based on administrative data (Podsakoff et al., 2012; Jakobsen & Jensen, 2015). The survey was directed at two individuals within each organization who possessed knowledge of BPM, which further reduced the risk of measurement error (MacKenzie & Podsakoff, 2012). To minimize bias, respondents were selected based on their sufficient domain expertise, ensuring that the responses would not be affected by ambiguity in the questionnaire. Additionally, the questions referred to the current situation of the organization, which further helped in reducing the risk of systematic error.

To assess the internal consistency of the variables describing the factors associated with process maturity, the Cronbach's alpha reliability coefficient was computed. The resulting value of $\alpha = 0.788$ indicates a satisfactory level of internal reliability, thereby confirming the coherence of the constructs adopted for evaluation. The authors acknowledge the intercorrelated nature of the selected factors, however, the primary objective of the study was not to examine the interdependencies among these variables, but rather to determine their presence and evaluate them in relation to the process maturity characteristics attributed to each Park. This interrelation is justified, as the constructs pertain to a common underlying phenomenon.

To explore potential associations between the level of process maturity in STPs and their descriptive characteristics, Pearson's product-moment correlation analysis was employed. A significance threshold of $\alpha = 0.05$ was established for the purposes of statistical inference. All computations were conducted using IBM SPSS software.

The conducted study presents several important limitations that should be considered when interpreting the results. First, the research covered 28 parks and 56 respondents, which, despite the purposeful selection of the sample, does not allow for full generalization of the findings to the entire population of STPs in Poland, let alone in an international context. Additionally, although an adapted version of the assessment tool developed under the PRI project was applied, the study relied solely on one model of process maturity assessment. The lack of alternative frameworks, such as CMMI or PEMM, limits the potential for comparison and may narrow the evaluative perspective.

It should also be noted that the study primarily focused on internal characteristics of the Parks, such as the number of employees, number of tenant enterprises and the year of establishment. However, it omitted external and contextual factors that may significantly influence the development of process orientation, including regional policy, institutional support, funding availability or the degree of linkage with the public and academic sectors. All these limitations highlight the need for further, in-depth research (both quantitative and qualitative) that would allow for a better understanding of the mechanisms influencing process maturity of STPs and for the development of effective strategies aimed at enhancing it.

4. Research results

The analysis provides a comprehensive overview of the distribution of STPs across various levels of process maturity. It incorporates, as it was mentioned, key organizational characteristics, including the year of establishment, the number of employees and the number of tenant enterprises. These data, presented in Table 2, aim to support a deeper understanding of how the selected organizational factors correlate with the developmental stages of process maturity.

Overall, the highest number of Parks is found at level 2 (11 STPs) and level 4 (10 STPs), indicating that most of the examined entities are situated at an intermediate stage of process maturity. Levels 1, 3 and 5 are less represented, with 1, 3 and 3 Parks respectively.

Table 2. An analysis of the relationship between selected characteristics of STPs and their process maturity levels: a quantitative perspective (n=28)

Specification		Process maturity level				
		L1	L2	L3	L4	L5
In total		1	11	3	10	3
Year of establishment	2000 or earlier	0	2	0	1	0
	2001-2010	1	5	3	5	3
	2011 or later	0	4	0	4	0
Number of employees	10 or less	0	3	1	0	0
	11-20	0	3	1	5	1
	21-40	0	2	1	1	0
	41-60	1	0	0	3	2
	61 or more	0	3	0	1	0
Number of tenant enterprises	50 or less	1	6	1	5	1
	51-100	0	4	2	3	0
	101-150	0	0	0	1	1
	151-200	0	0	0	1	0
	201 or more	0	1	0	0	1

L – stands for “level”.

Source: own work based on the conducted study.

One of the key differentiating factors in determining the level of maturity appears to be the year of establishment. Parks founded between 2001 and 2010 dominate across all process maturity stages and tend to reach its highest levels. In contrast, Parks established in 2011 or later, are mainly present at levels 2 and 4, while those founded in 2000 or earlier, are few and generally exhibit lower levels of maturity. The number of employees in Parks also influences the distribution of process maturity levels. Units employing between 11 and 20 individuals display the greatest diversity and are notably represented at levels 2 and 4. Larger Parks, with staff numbers ranging from 41 to 60, demonstrate the highest levels of process advancement, reaching maturity levels 4 and 5. Likewise, the number of tenant enterprises appears to be significant determinant of process maturity levels. Parks hosting a smaller number of tenants (50 or less) are predominantly represented at levels 2 and 4. Those with a medium-sized tenant base (51 to 100) are distributed across all maturity levels, with a notable concentration at level 2. The largest STPs, accommodating 100 tenant enterprises or more, are exclusively found at levels 4 and 5, suggesting a strong capacity for managing complex organizational structures and processes.

The analysis of the relationship between STPs’ characteristics and their process maturity is presented in Table 3. It was evaluated with the use of Pearson's correlation coefficient and significance testing.

Table 3. The relationship between the characteristics of STPs and their process maturity

Specification	Process maturity level	
Year of establishment	Pearson's correlation coefficient	0,05
	(one-tailed significance)	0,358
Number of employees	Pearson's correlation coefficient	-0,046
	(one-tailed) significance	0,367
Number of tenant enterprises	Pearson's correlation coefficient	0,256*
	(one-tailed) significance	0,028

* Correlation significant at the 0.05 level.

Source: own work based on the conducted study.

Based on the analysis, the correlation between the year of establishment of the Park and its process maturity level is very low ($r = 0.05$) and statistically insignificant (one-tailed significance = 0.358). Similarly, the correlation between the number of employees and process maturity is also low and insignificant ($r = -0.046$; one-tailed significance = 0.367). These results suggest that neither the year of establishment nor the number of employees significantly influence the process maturity of the STPs.

In contrast, the number of tenant enterprises shows a moderate positive correlation with process maturity ($r = 0.256$), which is statistically significant at the 0.05 level (one-tailed significance = 0.028). This indicates that a higher number of tenants may be moderately associated with greater process maturity, suggesting a meaningful impact of this variable on the efficiency of processes within the Parks. Therefore, the findings indicate that characteristics such as the year of establishment and the number of employees do not play a crucial role in determining the process maturity of the Parks, whereas the number of tenant enterprises may have a significant influence here.

5. Discussion

The results of the presented study provide insight into the process maturity level of Science and Technology Parks in Poland, indicating both its status and the areas that require further development. The dominance of Parks at levels 2 and 4 of process maturity suggests that, although the basic elements of BPM have been implemented in many entities, there is a significant gap between initial implementation and the full institutionalization of the discussed concept within these organizations. Concern is raised by the very low representation of Parks at the 3rd stage of process maturity. The results obtained may be a consequence of the design and assumptions of the research tool used, primarily the cumulative requirement. Transitioning from level 2 to level 3 required STPs not only to develop detailed descriptions of key processes (including indicators and their implementation stages), but also to train process owners and other participants in BPM, establish methods for documenting process execution and carry out regular process risk management activities. An analysis of the Parks' responses regarding the presence of these elements revealed that most entities encountered difficulties at the stage of developing detailed descriptions of key processes. Studies in the literature indicate that the success of business process modeling initiatives, including the development of process descriptions, is significantly influenced by a combination of factors such as top-level management support, project management capabilities, stakeholder engagement, modeling expertise and the effective use of ITC-based modeling tools (Bandara et al., 2021b). Considering these findings, it can be inferred that STPs may encounter a variety of challenges when attempting to develop comprehensive and detailed descriptions of their key processes. Firstly, many of these entities operate within project-based environments, where activities are highly tailored to client needs. This complexity hinders the structuring of operations into repeatable processes with clearly defined indicators and stages (Frank et al., 2020; Vijayakumar, 2023). Secondly, a lack of a standardized approach to process identification often leads to uncertainty regarding which activities should be classified as key processes. It is also worth noting that contemporary service design practices conceptualize services as multi-stage processes in which the value of each step is uncertain and influenced by both functional benefits and subjective user experiences (Bellos & Kavadias, 2021). This prevailing uncertainty may lead to the avoidance of efforts aimed at describing key processes within STPs. Additionally, such initiatives are often perceived as superfluous bureaucratic procedures, which can act as a barrier to their implementation. This perception is further associated with the risk of bureaucratic dysfunctions, including delayed decision-making, reduced transparency and increased operational costs (Espinheira & Almeida, 2021; Setyasih, 2023). Without strong support from senior management, this issue may not be treated as a strategic priority. A key action in overcoming this perception may also be the promotion of a culture of accountability and transparency (Gardner & Childs, 2022).

It is also important to highlight the limited presence of STPs at the highest, 5th level of process maturity. According to the adopted assessment tool, reaching this stage requires the implementation of advanced practices across three interrelated areas. First, digital tools play a pivotal role here. As noted by Tsinarakis et al. (2022), Parks should utilize electronic systems that support process monitoring, performance tracking through indicators and process modeling using maps and workflows. The implementation of such ITC systems in a technologically advanced and smart STP demonstrates its ability to deliver personalized project solutions and enables integrated, professional management, thereby creating greater economic and social value (Zhang & Li, 2023). Second, continuous process improvement must be grounded in data, including the use of customer satisfaction surveys and process monitoring to enhance efficiency, quality and timeliness. Continuous improvement also entails the regular assessment of all tools and procedures related to BPM, along with the systematic use of these assessments to inform improvements. Third, mature process management presupposes strategic learning through external comparisons. Parks should therefore engage in ongoing benchmarking of

their processes and organizational practices against other STPs and proactively adopt and implement proven practices from recognized leaders in the field. A more in-depth analysis in this area revealed that the studied entities primarily suffer from a lack of technological infrastructure necessary for mature process management. The insufficient use of ITC systems supporting BPM in Parks can be attributed to a combination of various factors. First and foremost, the implementation of tools such as BPM systems or software for process modeling and monitoring entails high costs, not only in terms of license acquisition, but also in adapting the systems to the specific context of the Parks functioning, implementing them effectively and providing adequate training for the employees. Reducing this barrier could yield significant benefits, as current research shows that the implementation of process monitoring systems leads to a reduction in organizational operating costs, including lower energy consumption, making it a potentially more efficient solution for monitoring STPs than other non-process-based systems (Chen et al., 2021). Despite the advantages associated with the adoption of ITC systems supporting BPM in Parks, for many of these entities, particularly those operating with public funds or project-based financing, such expenditures are difficult to justify or may be ineligible under existing funding mechanisms (Entringer & Lacopo da Silva, 2020). For instance, many university-affiliated Research and Science Parks, especially those funded primarily through public sources, face challenges in justifying expenses related to economic impact assessments (Hobbs et al., 2020). Moreover, there is often a lack of awareness within Science and Technology Parks regarding the necessity of using such tools, as they are frequently perceived as overly complex, unintuitive, excessively sophisticated or simply not useful for day-to-day operations. This perception may therefore result in low interest in their adoption (Zuhaira & Ahmad, 2021; Zhou et al., 2023).

Another noteworthy finding is the statistically significant, moderately positive correlation between the number of tenant enterprises and the process maturity level of STPs. This result suggests that an increase in the number of tenants may act as a catalyst for the formalization and standardization of processes, thus, enhancing process maturity. It supports the theoretical proposition that growing organizational complexity heightens the need for systematic management tools (Dijkman et al., 2016) and aligns with the conclusions of studies conducted in Latin America (Correia et al., 2021). While a higher number of tenants may foster more efficient collaboration and resource sharing, there is currently no direct evidence confirming that formalization and standardization processes are taking place specifically within STPs (Albahari et al., 2022). In contrast to the findings, neither the year of establishment nor the number of employees showed a statistically significant relationship with the process maturity level of STPs. This result contradicts earlier research suggesting that organizational age and size positively influence BPM development (Quinn & Cameron, 1983; Pyłacz, 2022). A possible explanation is that the development of Science and Technology Parks in Poland has occurred relatively recently and within a similar political environment, which may have minimized differences attributable to age and workforce size. But, for example, a study focusing on public sector organizations in the United Arab Emirates found that larger entities demonstrated more robust knowledge management processes, which are closely linked to the effectiveness of BPM. However, it should be noted that these benefits may be offset in very large organizations due to their inherent complexity and bureaucratic inefficiencies (Al Yami et al., 2022).

All these observations confirm the need to develop personalized, context-sensitive strategies to support BPM in Science and Technology Parks. In this matter, greater attention should be devoted to the role of external factors, such as public policy support and regional innovation ecosystems, as well as internal enablers of BPM development, including leadership, governance structures, continuous training in BPM practices and investments in dedicated ITC infrastructure. Finally, the adoption of integrated models such as the earlier mentioned Process and Enterprise Maturity Model, which consider both process elements and organizational capabilities, may offer a pathway to reducing the current disparities in process maturity levels among different STPs.

Conclusions

The conducted study provides a basis for concluding that most of the Science and Technology Parks in Poland have reached levels 2 and 4 of process maturity, indicating their moderate advancement in the use of BPM. Parks that have achieved the highest level of maturity (level 5) represent a minority, which suggest challenges in fully implementing advanced process solutions within these entities. A key factor found to play a significant role in increasing the level of process maturity was the number of tenant enterprises in Parks.

The study also indicates that the year of establishment and the number of employees in STPs do not have a significant impact on the level of their process maturity. In contrast, the number of tenant enterprises, as it was mentioned, shows a moderately positive influence on this level, which may suggest that larger structures are more capable of adapting advanced processes. Furthermore, serving a greater number of tenant enterprises may create a need to organize work more efficiently and implement specific process execution procedures, thereby contributing to increased process maturity in these entities.

Based on the obtained research results and its limitations, several directions for further studies can be identified. First, as it was mentioned, the results of the study indicate that a considerable number of STPs remain at level 2, with relatively few reaching level 3. Although the study results revealed factors that may play a decisive role in this regard, the authors believe that further, in-depth analysis is still required. Therefore, it is justified to investigate the key factors within e.g. STPs' organizational culture, their work structure or the factors related to their strategy etc., that may also limit progress to higher levels of process maturity. Such research could serve as a foundation for shaping development recommendations and targeted interventions to support process transformation in Parks. The analysis of the relationship between the characteristics of the Parks and their process maturity level revealed, as also previously mentioned, a statistically significant impact of only one variable, which is the number of tenant enterprises. Other factors proved to be statistically insignificant. Future research could delve deeper into the reasons behind this outcome. Moreover, some Parks achieve higher maturity levels despite having limited resources. Case study analyses could reveal which specific practices or strategies enabled these outcomes. Also conducting a longitudinal study involving the same entities in subsequent years would facilitate the assessment of the dynamics of change and the long-term effectiveness of implemented process-oriented practices. Furthermore, an in-depth analysis of the role of public policy and support instruments in promoting the development of process-based management could offer valuable insights and strategic recommendations for policymakers.

The conducted study carries several practical implications, primarily for the managers of STPs. First and foremost, the obtained results enable the identification of the level of advancement in BPM within individual Parks, which may serve as a starting point for designing targeted development activities both in these entities and in others that remain at lower maturity levels. In this context, the applied process maturity model can serve as a practical self-assessment tool, allowing for regular diagnosis of the organization's condition and the planning of appropriate improvements. Moreover, knowledge of the key factors influencing process maturity, such as the number of tenant enterprises, may support STPs' managers in making strategic decisions regarding organizational structure, human resource policies and investment directions. Finally, the findings may serve as an incentive to implement modern organizational models and ICT solutions that support process-oriented management and facilitate the attainment of higher maturity levels.

References

- Ahmad, T., & Van Looy, A. (2021). Development and testing of an explorative BPM acceptance model: Insights from the COVID-19 pandemic. *Plos ONE*, 16(11), 1-25. <https://doi.org/10.1371/JOURNAL.PONE.0259226>
- Al Yami, M., Ajmal, M. M., & Balasubramanian, S. (2022). Does size matter? The effects of public sector organizational size on knowledge management processes and operational efficiency. *VINE Journal of Information and Knowledge Management Systems*, 52(5), 670-700. <https://doi.org/10.1108/VJIKMS-07-2020-0123>
- Albahari, A., Barge-Gil, A., Pérez-Canto, S., & Landoni, P. (2022). The effect of science and technology parks on tenant firms: a literature review. *Journal of Technology Transfer*, 48, 1489-1531. <https://doi.org/10.1007/s10961-022-09949-7>
- Aljlal, N. (2024). The Role of Organizational Culture in Business Process Management Adoption: A Case Study. *Procedia Computer Science*, 234, 663-673. <https://doi.org/10.1016/j.procs.2024.03.052>
- Bandara, W., Van Looy, A., Rosemann, M., & Meyers, L. (2021a). A call for Holistic Business Process Management. In I. Beerepoot, C. Di Ciccio, A. Marrella, H. A. Reijers, S. Rinderle-Ma, & B. Weber (Eds.) *Proceedings of the International Workshop on BPM Problems to Solve Before We Die (PROBLEMS 2021)* (pp. 6-10). Sun SITE Central Europe (CEUR), Germany. <https://biblio.ugent.be/publication/8735117>

- Bandara, W., Gable, G. G., Tate, M., & Rosemann, M. (2021b). A validated business process modelling success factors model. *Business Process Management Journal*, 27(5), 1522-1544. <https://doi.org/10.1108/BPMJ-06-2019-0241>
- Bellos, I., & Kavadias, S. (2021). Service Design for a Holistic Customer Experience: A Process Framework. *Management Science*, 67(3), 1718-1736. <https://doi.org/10.1287/MNSC.2020.3609>
- Bitkowska, A. (2021). *Zarządzanie procesami biznesowymi. Dojrzałość, metody, praktyka*. Warszawa: Wydawnictwo Naukowe PWN.
- Bitkowska, A., & Łukaszczuk-Walter, A. (2022). Budowa systemu zarządzania procesowego we współczesnych organizacjach. *Zeszyty Naukowe Wydziału Zarządzania GWSH*, 19, 5-15. <https://doi.org/10.53259/2022.19.01>
- Brajer-Marczak, R. (2017). Bariery upowszechniania modeli dojrzałości procesowej. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, 463, 133-145. <https://doi.org/10.15611/pn.2017.463.11>
- Brajer-Marczak, R., & Gębczyńska, A. (2021). *Process Maturity Models as Tools for Organisation Improvement and Development*. In S. Khalid (Ed.), *Education Excellence and Innovation Management: A 2025 Vision to Sustain Economic Development during Global Challenges* (pp. 10260-10269), IBIMA. <https://ibima.org/accepted-paper/process-maturity-models-as-tools-for-organisation-improvement-and-development/>
- Brewer, K. R. W. (2006). Combined survey sampling inference: Weighing the evidence. *The American Statistician*, 60(2), 166-170. <https://doi.org/10.1198/000313006X106030>
- Brilman, J. (2002). *Nowoczesne koncepcje i metody zarządzania*. Warszawa: Polskie Wydawnictwo Ekonomiczne.
- Chen, Z., Zang, C., Wang, W., & Tang, X. (2021). A Design of Industrial Park Environment Monitoring System Based on NB-IoT. *Journal of Physics: Conference Series*, 1738 (012121), 1-5. <https://doi.org/10.1088/1742-6596/1738/1/012121>
- Correia, A. M. M., & da Veiga, C. P. (2019). Management model by processes for science parks. *Cogent Business & Management*, 6(1), 1-13. <https://doi.org/10.1080/23311975.2019.1580121>
- Correia, A. M. M., Veiga, C. P., Senff, C. O., & Duclós, L. C. (2021). Analysis of the maturity level of business processes for science and technology parks. *SAGE Open*, 11(3), 1-15. <https://doi.org/10.1177/21582440211037303>
- Czaplińska, A., & Romanowski, R. (2024). Functioning of Business Incubators and Technology Parks in Poland in the context of Industry 4.0. *Scientific Papers of Silesian University of Technology. Organization and Management*, 192, 125-146. <https://doi.org/10.29119/1641-3466.2024.192.8>
- Dijkman, R., Lammers, S. V., & de Jong, A. (2016). Properties that influence business process management maturity and its effect on organizational performance. *Inf Syst Front*, 18, 717-734. <https://doi.org/10.1007/s10796-015-9554-5>
- Dumas, M., La Rosa, M., Mendling, J., & Reijers, H. A. (2018). *Fundamentals of Business Process Management* (2nd ed.). Springer. <https://doi.org/10.1007/978-3-662-56509-4>
- Eikebrokk, T. R., Iden, J., Olsen, D. H., & Opdahl, A. L. (2011). Understanding the determinants of business process modelling in organizations. *Business Process Management Journal*, 17(4), 639-662. <https://doi.org/10.1108/14637151111149465>
- Entringer, T., & Lacopo da Silva, L. (2020). Critical success factors in science and technology parks: a bibliographic review and analysis. *Independent Journal of Management & Production*, 11(2), 343-359. <https://doi.org/10.14807/IJMP.V11I2.1050>
- Espinheira, E., & Almeida, F. (2021). From Management 1.0 to Management 3.0 and beyond. In R. Jackson, & A. Reboulet (Eds.) *Effective Strategies for Communicating Insights in Business* (pp. 32-52), New York: Business Science Reference. <https://doi.org/10.4018/978-1-7998-3964-4.ch003>
- Forés, B., & Fernández-Yáñez, J.M. (2024). Sustainability performance in science and technology parks: how can firms benefit most? *European Journal of Management and Business Economics*. <http://doi.org/10.1108/EJMBE-06-2023-0200>
- Frank, L., Poll, R., Roeglinger, M., & Lea, R. (2020). Design Heuristics for Customer-Centric Business Processes. *Business Process Management Journal*, 26(6), 1283-1305. <https://doi.org/10.1108/BPMJ-06-2019-0257>
- Fuschi, D. L., & Galiyeva, N. (2022). A Process Based Model of Business Incubator in Systems Engineering Terms. *Journal of Organisational Studies and Innovation*, 9(1), 62-103. <https://doi.org/10.51659/josi.21-147>

- Gardner, J. W., & Childs, S. (2022). Managing the waste of over processing in healthcare using accountability through utilization reviews and information technologies. *The Quality Management Journal*, 29(2), 82-103. <https://doi.org/10.1080/10686967.2022.2034492>
- Glambek, M., Einarsen, S., Gjerstad, J., & Nielsen, M. (2023). Last in, first out? Length of service as a moderator of the relationship between exposure to bullying behaviors and work-related outcomes. *Current Psychology*, 43, 1-13. <https://doi.org/10.1007/s12144-022-04202-8>
- Gökalp, E., Demirörs, O., & Eren, P. E. (2020). Public Personnel Management Process Capability Assessment. *Public Personnel Management*, 49(1), 111-140. <https://doi.org/10.1177/0091026019833412>
- Hammer, M. (2007). *The Process Audit*. Harvard Business Review, 85(4), 111-123. <https://hbr.org/2007/04/the-process-audit>
- Hammer, M., & Champy, J. (1996). *Reengineering the corporation: A manifesto for business revolution* (Revised ed.). New York: HarperBusiness.
- Hobbs, K. G., Link, A. N., & Scott, J. T. (2017). Science and technology parks: an annotated and analytical literature review. *Journal of Technology Transfer*, 42(4), 957-976. <https://doi.org/10.1007/s10961-016-9522-3>
- Hobbs, K. G., Link, A. N., & Shelton, T. L. (2020). The Regional Economic Impacts of University Research and Science Parks. *Journal of The Knowledge Economy*, 11(1), 42-56. <https://doi.org/10.1007/S13132-018-0566-5>
- IASP. (2022). *Global Survey 2022: Science and technology parks and areas of innovation throughout the world*. Malaga: International Association of Science Parks and Areas of Innovation. <https://www.iasp.ws/our-industry/knowledge-room/iasp-global-survey-2022--science-and-technology-parks-and-areas-of-innovation-throughout-the-world>
- Jakobsen, M., & Jensen, R. (2015). Common method bias in public management studies. *International Public Management Journal*, 18(1), 3-30. <https://doi.org/10.1080/10967494.2014.997906>
- Kohlbacher, M., & Reijers, H. A. (2013). The Effects of Process-Oriented Organizational Design on Firm Performance. *Business Process Management Journal*, 19(2), 292-307. <https://doi.org/10.1108/14637151311308303>
- Khorshid, M., Rezk, M., Ismail, M., Piccinetti, L., Radwan, A., Helmy, O., & Sakr, M. (2023). Research, development and innovation in business enterprises: experience from Egypt. *Insights into Regional Development*, 5(1), 41-58. [https://doi.org/10.9770/ird.2023.5.1\(3\)](https://doi.org/10.9770/ird.2023.5.1(3))
- Kregel, I., Distel, B., & Coners, A. (2021). Business Process Management Culture in Public Administration and Its Determinants. *Business & Information Systems Engineering*, 64(2), 201-221. <https://doi.org/10.1007/s12599-021-00713-z>
- Lankhorst, M. (2009). *Enterprise Architecture at Work: Modelling, Communication and Analysis*. https://books.google.lt/books/about/Enterprise_Architecture_at_Work.html?id=ZR_1gXt9vcYC&redir_esc=y
- Lizińska, W., Sobol, D., & Rütelionė, A. (2024). Internationalization of science and technology parks and the stage of their life: The Central European perspective. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 19(2), 549–590. <https://doi.org/10.24136/eq.3085>
- Lusk, S., Paley, S., & Spanyi, A. (2005). *What is BPM?* Retrieved June 25, 2025, from <https://www.bptrends.com/publicationfiles/04-05-ART-WhatIsBPM-LuskPaleySpanyi-final.pdf>
- MacKenzie, S. B., & Podsakoff, P. M. (2012). Common method bias in marketing: Causes, mechanisms, and procedural remedies. *Journal of Retailing*, 88(4), 542-555. <https://doi.org/10.1016/j.jretai.2012.08.001>
- Martinez-Cañaz, T., Ruiz-Palomino, P., & Pozo-Rubio, R. (2011). The impact of an experiential learning program on the entrepreneurial attitude of university students. *The International Journal of Management Education*, 9(3), 125-133. <https://doi.org/10.3794/ijme.93.730>
- McCormack, K., & Johnson, W.C. (2001). *Business Process Orientation: Gaining the E-Business Competitive Advantage*. CRC Press. <https://www.routledge.com/Business-Process-Orientation-Gaining-the-E-Business-Competitive-Advantage/McCormack-Johnson/p/book/9781574442946?srsltid=AfmBOopcq63GC4Y6Dzw8ZnJk6JraOAGaoe6x5ZwqtsQJDtG839hVHe5Z>
- Mielcarek, P. (2020). Three-dimensional perspective of organization's process maturity towards company's exploration and exploitation: A research study. *European Research Studies Journal*, 23(2), 517-529. <https://doi.org/10.35808/ersj/1839>

Mohamed, W., Rezk, M. R., Soliman, A., Piccinetti, L., Santoro, D., & Sakr, M. M. (2024). The role of technological incubators in fostering entrepreneurial growth: the case of Egyptian universities and research centres. *Insights into Regional Development*, 6(3), 85-97. <https://doi.org/10.70132/d2467724723>

Noronha, C.L., & Pillai, S.K.V.B. (2025). Fostering startups through the vehicle of entrepreneurial support organizations like technology business incubators (TBIs): a systematic literature review. *Journal of Global Entrepreneurship Research*, 15(1), Article Number 4 <https://doi.org/10.1007/s40497-024-00419-y>

Nowosielski, S. (2008). *Procesy i projekty logistyczne*. Wrocław: Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu.
Object Management Group. (2011). *Business Process Maturity Model (BPMM), Version 1.0*. OMG. Retrieved April 10, 2025, from <https://www.omg.org/spec/BPMM/1.0>

Pall, G. A. (1987). *Quality process management*. Prentice Hall.
https://books.google.lt/books/about/Quality_Process_Management.html?id=wxIfAQAAIAAJ&hl=en&redir_esc=y

Paulk, M. C., Curtis, W., Chrissis, M. B., & Weber, C. V. (1993). *Capability Maturity Model for Software, Version 1.1*(CMU/SEI-93-TR-024). Software Engineering Institute, Carnegie Mellon University. Retrieved January 21, 2025 from https://resources.sei.cmu.edu/asset_files/TechnicalReport/1993_005_001_16211.pdf

Piana, J., Caviccholi Zola, F., & da Costa A. T. (2023). Modelos de maturidade em gestão de processos: Uma revisão sistematica da literatura. *Revista Gestão em Análise*, 12(3), 48-65. <https://doi.org/10.12662/2359-618xregea.v12i3.p48-65.2023>

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, 63(1), 539-569. <https://doi.org/10.1146/annurev-psych-120710-100452>

Pyplacz, P. (2022). Determinants of organizational process maturity – research study. *Global Journal of Entrepreneurship and Management*, 3(1), 1-12. <https://doi.org/10.57585/GJEM.022.009>

Quinn, R. E., & Cameron, K. S. (1983). Organizational Life Cycles and Shifting Criteria of Effectiveness: Some Preliminary Evidence. *Management Science*, 29(1), 33-51. <https://doi.org/10.1287/mnsc.29.1.33>

Raczyńska, M., & Krukowski, K. (2022). *Dojrzałość procesowa jednostek samorządu terytorialnego*. Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego

Reijers, H. A. (2021). *Business Process Management: The evolution of a discipline*. *Computers in Industry*, 126, 103404, 1-5. <https://doi.org/10.1016/j.compind.2021.103404>

Rosemann, M., & de Bruin, T. (2005). *Towards a Business Process Management Maturity Model*. In Proceedings of the 13th European Conference on Information Systems (ECIS 2005). Association for Information Systems. Retrieved March 21, 2025, from <https://aisel.aisnet.org/ecis2005/37/>

Senkus, P., Glabiszewski, W., Wysokińska-Senkus, A., & Pańka, A. (2021). Process definitions – Critical literature review. *European Research Studies Journal*, 24(3), 241-255. <https://doi.org/10.35808/ersj/2352>

Setyasih, E. T. (2023). Creating an Effective Bureaucracy by Reducing Bureaucratic Pathology in Local Governments. *Influence*, 5(1), 137-143. <https://doi.org/10.54783/influencejournal.v5i1.112>

Silva, M. R. D., Resende, N. de S. M., & da Silva-Dias, E. P. (2022). Connections between Governance and Business Process Management – BPM. *International Journal for Innovation Education and Research*, 10(4), 221-235. <https://doi.org/10.31686/ijer.vol10.iss4.3733>

Tsinarakis, G. J., Sarantinoudis, N., & Arampatzis, G. (2022). A Discrete Process Modelling and Simulation Methodology for Industrial Systems within the Concept of Digital Twins. *Applied Sciences*, 12(2), 1-22. <https://doi.org/10.3390/app12020870>

UNIDO. (2021). A new generation of science and technology parks. UNIDO's strategic approach to fostering innovation and technology for Inclusive and Sustainable Industrial Development. Retrieved May 25, 2025, from https://hub.unido.org/sites/default/files/publications/Publication_%20New%20Generation%20of%20STI%20parks_2021.pdf

Vijayakumar, H. (2023). Transforming service operations with AI: A case for business value. *International Journal of Managing Information Technology*, 15(1/2), 19-31. <https://doi.org/10.5121/ijmit.2023.15202>

Xie, K. (2024). Research on the construction of intelligent system of landscape in science and innovation park of smart city - based on the concept of smart garden design. *Scalable Computing-Practice and Experience*, 25(5), 4070-4082. <http://doi.org/10.12694/scpe.v25i5.1861>

Zhang, J., & Li, A. (2023). Design System of Integrated Management Platform for Smart Park and Project Case. *Electronic Journal of Structural Engineering*, 23(2), 15-20. <https://doi.org/10.56748/ejse.234022>

Zhou, C., Zhang, D., Chen, D., & Liu, C. (2023). Business process complexity measurement: A systematic literature review. *IEEE Access*, 11, 47940-47955. <https://doi.org/10.1109/ACCESS.2023.3275764>

Zuhaira, B., & Ahmad, N. (2021). Business process modeling, implementation, analysis, and management: the case of business process management tools. *Business Process Management Journal*, 27(1), 145-183. <https://doi.org/10.1108/BPMJ-06-2018-0168>

Żabiński, M. L. (2015). Proces wdrażania metody PRI. In M. Ćwiklicki (Ed.). *Systemowe zmiany w funkcjonowaniu polskiego samorządu terytorialnego*. Kraków: Wydawnictwo Uniwersytetu Ekonomicznego w Krakowie.

Funding: This research was funded by the Faculty of Economic Sciences of the University of Warmia and Mazury in Olsztyn, Poland.

Author Contributions: Conceptualization: WL, KK, DS, MR; methodology: WL, KK, DS, MR; data analysis: KK, writing—original draft preparation: MR, KK, writing; review and editing: MR, KK; visualization: MR. All authors have read and agreed to the published version of the manuscript.

Magdalena RACZYŃSKA is the Associate Professor at the Faculty of Economic Sciences, University of Warmia and Mazury in Olsztyn, Poland. Research interests: Business Process Management, managing public organizations, managing neurodiversity, managerial decisions.

ORCID ID: <https://orcid.org/0000-0002-4961-5028>

Krzysztof KRUKOWSKI is the Professor at the Faculty of Economic Sciences, University of Warmia and Mazury in Olsztyn, Poland. He serves as the Dean of the Faculty of Economic Sciences. Research interests: strategic management, management of public organizations, change management.

ORCID ID: <https://orcid.org/0000-0002-1614-4397>

Dorota SOBOL is the Assistant Professor at the Faculty of Economic Sciences, University of Warmia and Mazury in Olsztyn, Poland. Research interests: the management of innovation and entrepreneurship centers, managing Science and Technology Parks, management concepts, managerial decisions.

ORCID ID: <https://orcid.org/0000-0002-2514-9560>

Wiesława LIZIŃSKA is the Professor at the Faculty of Economic Sciences, University of Warmia and Mazury in Olsztyn, Poland. She serves as the Director of the Institute of Economics and Finance. Research interests: regional and local development, international capital transfer, investment climate, special economic zones, foreign investments.

ORCID ID: <https://orcid.org/0000-0002-6957-2846>