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ORGANISATIONAL READINESS FOR PROCESS AND DIGITAL TRANSFORMATION

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Purpose: This article presents the results of a multidimensional diagnosis of process maturity and organisational readiness for change in a regional passenger rail operator, using Koleje Wielkopolskie sp. z o.o. as a case study. The objective was to assess employees' process knowledge, the level of process standardisation and measurement, and to identify organisational barriers and the potential for organisational and digital transformation in the context of increasing competition in the Public Service Contract (PSC) market.
Methodology: Methodological triangulation was applied, combining a survey (N = 84), expert interviews, and diagnostic workshops. The research design was grounded in Business Process Management (BPM) principles and reference process maturity models. The analysis enabled a multidimensional assessment of process awareness, procedural formalisation, digitalisation level, and employee attitudes toward change.
Findings: The results indicate a medium–high level of process maturity, high employee process awareness, and strong declared readiness for change, alongside significant constraints in IT system integration, data quality, procedural coherence, and interdepartmental communication. A maturity gap was identified between dynamic operational growth and the formalisation and measurement of processes.
Practical implications: The study proposes key development directions, including system digitalisation and integration, structuring of process architecture, establishment of a coherent Key Performance Indicators (KPI) system, and creation of a permanent process improvement team. The findings provide actionable guidance for public transport organisations preparing to operate in a more competitive environment.
Originality/value: The study offers an integrated empirical assessment linking BPM maturity models with organisational readiness for change and technology readiness perspectives in the under-researched context of regional rail transport. It contributes to theory by highlighting interdependencies between process maturity, digital capability, and organisational readiness, and to practice by supporting evidence-based transformation and performance management in organisations facing competitive tendering.

Keywords: process maturity; readiness for change; Business Process Management (BPM); digital transformation; rail transport.
Category of the paper: Research paper.

1. Introduction

Today, rail transport constitutes one of the pillars of sustainable mobility in Poland and in the European Union. In recent years, rail has become a viable alternative to private car use and road transport, both for climate-related and cost-related reasons. However, the requirements of the European Green Deal, pressure to reduce emissions, and the rapid digitalisation of the sector mean that operators must simultaneously maintain service quality and improve organisational efficiency. This also applies to regional operators, which operate at the intersection of regional transport policy, passenger expectations, and the real costs of service provision.

The Polish passenger rail market is developing exceptionally dynamically. According to data from the Office of Rail Transport (UTK), more than 407 million passengers were transported in 2024, representing the best result in more than 20 years. At the same time, analyses based on the Passenger Transport Model forecast that by 2030 passenger numbers may increase within a wide range of between 11% and 37% (Krawiec, 2025). This growth has not occurred by chance; it has been achieved through the modernisation of railway infrastructure and rolling stock, improvements in travel standards, increased frequency of regional services, and the development of convenient interchange connections. At the same time, labour, electricity, fuel, and rolling stock maintenance costs are rising, while passengers increasingly expect efficient, predictable, and digitally enabled services. As a result, operators must improve resource planning and optimise rolling stock maintenance cycles.

Koleje Wielkopolskie sp. z o.o. is one of the strongest regional rail operators in Poland. The Company delivers services under a Public Service Contract (PSC) with the Self-Government of the Wielkopolska Region, which provides stable financing while simultaneously requiring cost transparency and performance accountability. After 2030, with the full implementation of the Fourth EU Rail Package (Directive 2016/2370/EU and Regulation 2016/2338/EU), the regional passenger transport market will become more open to competition. This means that existing "in-house operators" – such as *Koleje Wielkopolskie* – will have to compete for contracts in practice, rather than continuing to receive them through direct award procedures.

In this perspective, the structuring of organisational processes, the improvement of digitalisation, the preparation of facilities for the internal execution of rolling stock overhauls of the P4-level from 2026 (in Zbąszynek, Poznań and Wągrowiec), and the development of a performance measurement culture become critical. In order to address these challenges, it was necessary to assess process maturity across the dimensions of People – Processes –

Technologies, in order to determine whether the Company is ready for such a competitive leap and which elements require prioritised strengthening.

2. Organisational change and organisational maturity: concept, models and assessment

2.1. Organisational change

Changes occurring within organisations constitute an inherent element of their functioning and simultaneously represent some of the greatest challenges faced by contemporary organisations (Kulawik-Dutkowska, 2016). Organisational change in enterprises is often driven by environmental pressure arising from market competition and regulatory requirements. It may also be driven by technological pressure resulting from the obsolescence of technologies and solutions applied within the enterprise. Organisational change encompasses all transformations of the current state of various functional areas of an enterprise into a future state (Walas-Trębacz, 2009). The literature identifies several models of change management, among which one of the most frequently applied is Lewin's force field theory, which encompasses a three-stage change implementation process.

The process of organisational change should begin with the freezing of the current state of the organisation, followed by the introduction of planned changes. Only after these changes have stabilised should the organisation be refrozen (Johanne, 2025). According to Lewin, change occurs when the balance of forces acting on the organisation is disrupted such that forces driving change become stronger than forces maintaining stability (Lewin, 1947). The first phase, unfreezing, occurs when previously applied procedures and behavioural patterns lose their validity as a result of destabilisation, while change-orientated strategies gain prominence. The second phase, the implementation of the change, represents the decision-making process on which changes should be introduced into the organisation. Typically, a change has one or more initiators (change agents) who supervise its implementation. Once the change has been implemented and accepted, the organisation enters the third phase, refreezing. Refreezing refers to renewed stabilisation of the organisation through the establishment of new behavioural patterns and the introduction of new procedures (Kulawik-Dutkowska, 2016; Hussain et al., 2018).

In the field of change management, the literature also frequently refers to Kotter's eight-step model of change implementation. The first step involves establishing a sense of urgency for change. The second step assumes the creation of a guiding coalition, that is, a team responsible for leading the change. The third step comprises the development of a vision and strategy of change that define the direction of change. In the fourth step, the vision of change is communicated to the widest possible group of employees. The fifth step focusses on enabling

action in support of the vision of change by removing obstacles that hinder the implementation of planned changes. The sixth step assumes the generation of short-term wins resulting in visible improvements in organisational performance. In the seventh step, changes are consolidated and further developed through the modification or enhancement of procedures or rules that no longer align with the vision of change. The final step involves anchoring the changes and embedding them permanently in the organisational culture (Grzesiuk, 2007; Pollack, Pollack, 2015).

The sources of organisational change can be divided into two categories: internal sources, related to the organisation's operations and strategy, and external sources, resulting from changing market conditions (Kulawik-Dutkowska, 2016). Changes themselves may be classified as planned or unplanned, with the objective of adapting the organisation to changing external or internal conditions (Greenberg, Baron, 2010). Change may arise from a specific event or organisational need and may encompass the entire organisation or only part of it. Moreover, organisational change can be evolutionary or revolutionary in nature (Bukłaha, Cabała, 2022).

2.2. Awareness, readiness, and maturity in the context of organisational change

Awareness, in the context of organisational change, refers to the' understanding of stakeholders of what change entails, including its expected outcomes and which elements of the organisation will be affected. Organisational awareness of the need for change constitutes the first stage of organisational transformation (Zine, 2025). Ready for change refers to the psychological and behavioural readiness of members of individual functional areas of the organisation to undertake change. Readiness encompasses, among others, beliefs, motivation and skills related to conducting change, as well as the resources that will be involved in its implementation (Caci et al., 2025). Maturity in relation to change denotes the organisation's ability to identify and adapt to change, as well as to manage it effectively. Organisational change maturity reflects the level of development of structures, processes, competencies, and organisational culture, and is most commonly described through maturity models that determine the ability to implement change in a repeatable manner (Silva, Mamede, Santos, 2025).).

At the same time, numerous studies indicate that one of the most frequent causes of the failure of change initiatives is insufficient organisational preparation and the lack of an adequate diagnosis of the initial state (Burke et al., 2022). Of particular importance is the assessment of readiness for change, which is a construct encompassing both psychological aspects (attitudes, motivation) and structural aspects (procedures, competencies, processes) (Mladenova, 2022). Understanding these relationships forms the foundation for the effective design of transformation initiatives.

Organisational readiness for change can be considered at multiple levels within the organisation. Readiness may be related to an individual, a group of individuals, a department, or the organisation as a whole (Weiner, 2009). In the literature, readiness is also conceptualised in three perspectives. First, readiness is considered at the individual level, with reference to personal capabilities and self-efficacy. Second, readiness is understood as perceived organisational readiness for change, that is, the belief that the organisation is capable of implementing the planned changes. The third perspective refers to the actual readiness of the organisation to introduce change, namely its real capability to achieve the intended objectives and successfully complete the change implementation (Vakola, 2013). In the literature, organisational readiness for change is very often associated with related concepts such as organisational readiness and technological readiness. As noted by previous studies, there are significant similarities between organisational readiness for change and technological readiness, observable among both operational employees and administrative staff (Dönmez et al., 2020).

Organisational readiness indicates whether members of the organisation are prepared to implement the planned changes (Caci et al., 2025). The concept of Organisational Readiness for Change (ORC) comprises two dimensions: psychological readiness and behavioural readiness. The originator of this concept, B.J. Weiner, assumes that the organisation must be capable of implementing the planned change, while at the same time its employees must be aware of it and accept it (Weiner, 2020).

Psychological readiness encompasses the attitudes and beliefs of employees who will be directly or indirectly involved in organisational change. It assumes the mental preparedness of both operational and managerial staff for organisational transformation. Behavioural readiness, in turn, encompasses the' intentions and actions of employees. In this context, organisational readiness for change denotes the preparation of organisational members to implement change based on proven methods supporting change implementation. Behavioural readiness also focusses on communication and the appropriate allocation of available resources in the context of organisational change implementation (van de Water et al., 2024; Tasleem et al., 2023).

Technological readiness, by contrast, refers to an organisation's ability to integrate and use new technologies. This capability arises from the ability to adapt to changing conditions in which the organisation operates, including technological conditions. Technological change is dynamic in nature, and an organisation seeking to adapt effectively should equip its employees with the necessary skills, knowledge, and tools that enable them to work with advanced solutions, including in terms of applied technologies (Jamil et al., 2025).

2.3. Organisational and technological Macromaturity models

In addition to the change management models discussed earlier – namely Lewin's force field theory encompassing a three-stage change implementation process, Kotter's eight-step model of change implementation, and Weiner's Organisational Readiness for Change (ORC)

model – the literature also presents other models of organisational readiness for change (Bukłaha, Cabała, 2022). The organisational readiness models described in the literature are summarised in Table 1.

Table 1.
Organisational readiness models

Author (year)	Model	Key characteristics
van de Water et al., 2024; Adelson et al., 2021	ORIC Model (The Organisational Readiness for Implementing Change)	– a questionnaire consisting of 12 items (7 items measuring motivation and 5 items measuring capability), assessed using a five-point Likert scale; – applied to assess organisational readiness for change implementation across two dimensions of change engagement, namely motivation and change efficacy.
Jaaron et al., 2022; Osolase et al., 2022	ADKAR Model (Awareness, Desire, Knowledge, Ability, Reinforcement)	– a five-stage model for implementing effective and sustainable change among employees, developed by J. Hiatt; – focusses on change at the level of individual employees, employee groups, or entire organisations; – assumes that the most critical stage of change is the' awareness of employees of the need for change and that the organisation's role is to provide employees with access to knowledge and skills.
Suwanda, Nugroho, 2022; Jain, Kansal, 2023	McKinsey model (Model 7S / Structure 7S)	– a model developed by R.H. Waterman and T. Peters distinguishing seven elements divided into "hard" elements – the technical perspective of the organisation (strategy, structure, systems) – and "soft" elements – the social dimension of the organisation (shared values, style, skills, staff); – individual employee' skills developed with organisational support.
Chavan, Bhattacharya, 2022; Tarnoff et al., 2021	Kubler-Ross	– a model developed by E. Kübler-Ross comprising five emotional stages experienced by employees responding to organisational change; – based on the stages of denial (rejection of the fact that change is being implemented) and anger (awareness that change has commenced within the organisation), bargaining and depression (initial implementation of change) and acceptance (full organisational adoption of change).
Anderson, 2025	Knoster-Lippitt Model	– the model developed by Knoster and Lippitt is based on five elements: vision, consensus, skills, resources, and an action plan; – the absence of any of these elements may lead to difficulties in successful change implementation.
Wang et al., 2020	Model by T. Wang et al.	– measures readiness at both the individual and organisational levels and identifies interdependencies between them; – low readiness at both the individual and organisational levels indicates a dysfunctional phase (low employee engagement translating into low change effectiveness and limited value); – low organisational readiness combined with high individual readiness indicates an emergent phase (high initiative and effectiveness at the individual level, accompanied by a lack of organisational and structural support); – low individual readiness combined with high organisational readiness indicates a development phase (organisational structures support change implementation across departments, while individual engagement remains low); – high readiness at both the individual and organisational levels indicates a realisation phase (high change effectiveness and value resulting from strong engagement at both levels).

Cont. table 1.

Damschroder et al., 2022; Deshields et al., 2021	CFIR Model (Consolidated Framework for Implementation Research) Updated in 2022 to CFIR 2.0	– comprises 48 constructs (determinants) and 19 sub-constructs integrated within five main domains; – the main domains include: intervention characteristics and the level of implementation complexity; the inner context, referring to conditions within the organisation; the outer context, referring to conditions external to the organisation; characteristics of individuals, relating to employees involved in the implementation process, including their readiness for change; and the implementation process, encompassing activities and strategies undertaken throughout the change journey.

Source: his own elaboration.

The assessment of organisational readiness for change implementation can also be conducted using technology readiness models. The technology readiness models are presented in Table 2.

Table 2.
Technological readiness model

Author (year)	Technological Readiness Models	Characteristics
Yfanti, Sakkas, 2024; Salvador-Carulla, 2024; Straub, 2015; Lavin et al., 2022	TRLs Model (Technology Readiness Levels)	– assesses readiness for technological change implementation using a nine-level scale; – Level 1: observation of basic principles and research to understand the model and process; Level 2: concept of a new technology; Level 3: experimental proof of the technological concept; Level 4: laboratory validation of the developed technology; Level 5: testing of technology in a relevant environment; Level 6: prototype implementation of the technology; Level 8: deployment of technology in a commercial project; Level 9: fully mature technology; – the model assumes extension by two additional levels and the application of AI and ML solutions.
Pires et al., 2024	TRI2.0 Model (Technology Readiness Index)	– uses a five- or six-point Likert scale to assess 16 different elements grouped into four sub-dimensions (optimism, innovation, discomfort, uncertainty).
Khoza et al., 2024; Aljarrah et al., 2016; Xie et al., 2025	Technology Acceptance Model – TAM	– assumes an understanding of the factors that influence users' decisions regarding the adoption of a given technology; – defines the extent to which an employee believes that the implemented technology will improve work performance and the perceived ease of use; – The assessment may be conducted at the level of an individual employee, a department, or the entire organisation using a five-point Likert scale.
Kampa, 2023; Hutami et al., 2022; Larasati et al., 2017	Technology Readiness and Acceptance Model – TRAM	– integrates two approaches: the Technology Readiness Index (TRI) and the Technology Acceptance Model (TAM); – incorporates both the' individual characteristics of users assessed in four dimensions (optimism, innovation, discomfort, and uncertainty) and the perception aspects of technology (perceived usefulness and ease of use).
(Díaz-Arancibia et al., 2024; Hradecky, 2022; Omonov, Ahn, 2025	Model TOE (technology, organisation, environment).	– focusses on assessing technological readiness (external and internal), incorporating both organisational aspects (enterprise structure and resources) and environmental aspects (environment and stakeholders of the organisation).

Source: own elaboration.

The reviewed models collectively indicate that technological readiness extends beyond the technical maturity of solutions to include user acceptance, organisational capabilities, and environmental context. This justifies the adoption of a multidimensional diagnostic perspective in the present study, integrating process maturity, organisational readiness for change, and digital enablement in order to capture the systemic conditions required for successful transformation in complex transport organisations.

3. Research methodology

3.1. Scope of the research

Dynamic changes occurring in the organisational environment – including increasing complexity of operational processes, pressure for efficiency, and the need for flexible responses to the requirements of customers and regulators – make the role of process management critical to maintaining competitiveness (Zaw, Huang, 2024).). The literature emphasises that organisations with a high level of process maturity achieve greater operational efficiency, better service quality, and greater adaptive capacity (Sanford et al., 2024). However, the implementation of process management and the development of process maturity require not only structural changes, but also an adequate level of employee awareness, leadership engagement, and an organisational culture conducive to continuous improvement.

In the context of the above challenges, it is justified to conduct research that enables the following (Table 3):

- the diagnosis of the' level of process knowledge of the employees, which constitutes the foundation for the implementation of process management and the development of a process-orientated culture,
- the determination of the level of process maturity, allowing for the assessment of the degree of standardisation, stability, and efficiency, as well as comparison with reference models applied in managerial practice,
- the assessment of readiness for change, which constitutes a necessary condition for the effective implementation of organisational transformations,
- the integration of perspectives of different stakeholder groups, enabling the consideration of potential discrepancies between the perception of processes by operational employees, process owners, and senior management.

Table 3.
Methodology

Research variable	Definition	Indicators/questions	Scale/ Source of data	Methods
Process awareness	Degree of employee' understanding of the flow and interdependencies of key organisational processes	Declared process knowledge and ability to identify inter-process interdependencies (interviews)	Likert's scale1-5; qualitative data	Survey, interview
Process maturity – formalisation	Degree of existence, currency, and actual application of procedures	Accuracy of procedures; implementation in practice	Likert's scale1-5;	Survey, workshop
Process maturity – standardisation	Consistency of process execution across organisational units	Based work on standards vs. hidden knowledge	Likert's scale1-5; qualitative data	Survey, interview
Process maturity – measurement	Degree of utilisation of process performance indicators	KPIs; measurement repeatability; assessment approach (formal vs. intuitive)	Likert's scale1-5;	Survey, workshop
Process maturity – governance	Scope of monitoring and control of process execution	Controls regularity; responsibility of process owners	Likert's scale1-5;	Survey
IT support for processes	Level of integration and use of IT systems in process execution	Level of system integration; using alternative tools (Excel); satisfaction form operating systems	Likert's scale1-5;	Survey, interview
Data quality	Accuracy, completeness, and accessibility of process data	Assessment of data quality in key operational areas	Likert's scale1-5;	Survey
Ready for change – psychological	Employee' attitudes, motivation and acceptance of change	Openess to changes; declared need to develop competencies	Likert's scale1-5;	Survey
Ready for change – Behaviour	Propensity to undertake improvement initiatives	Participation in bottom-up initiatives; declared improvement activity	S Likert's scale1-5; qualitative data	Survey, interviews
Process and digital competencies	Level of competencies in BPM and IT tools	Demand for training; identified competency gaps;	Likert's scale1-5; qualitative data	Survey, interviews
Interdepartmental communication	Effectiveness of information flow between organisational units	Communication quality assessment; availability of shared data	Likert's scale1-5;	Survey
Organisational stability	Continuity of human resources and organisational experience	Staff turnover rate	Secondary data	Documents analysis

Source: own elaboration.

The application of methodological triangulation – surveys, expert interviews, and diagnostic workshops – enables the acquisition of an in-depth multidimensional diagnosis which, in line with the recommendations of the literature, increases the reliability of conclusions and allows the complexity of organisational phenomena to be captured (Vivek et al., 2023).

These studies are therefore justified both theoretically, as a contribution to the development of knowledge on process maturity and readiness for change, and practically, by providing organisations with data necessary for the design of effective transformation programmes.

The objective of the conducted research was a complete diagnosis of the knowledge of the organisational processes, the level of their maturity, and the organisation's readiness to introduce change. The methodology was developed based on the assumptions of Business Process Management (BPM) and process maturity assessment models such as BPMM (Lopes, Guerreiro, 2023), CMMI (Fabbro, Tonchia, 2021) and SPICE (ISO/IEC 15504).

Methodological triangulation was applied (Stamenkov, 2023), combining quantitative and qualitative approaches to improve the reliability and depth of interpretation of the findings. The study was designed according to the recommendations for organisational diagnosis and change assessment (Tabash et al., 2023).

3.2. Surveys

The survey constituted the primary quantitative method, allowing the measurement of the level of process awareness, subjective assessment of process maturity, and declared readiness for change. The questionnaire was developed according to the principles of measurement instrument design (Olawale et al., 2023) and included closed-ended questions, including items based on a five-point Likert scale.

The sample had a purpose-random character and comprised 84 representatives from various organisational areas of the analysed entity. Electronic data collection enabled efficient statistical analysis, including response distributions and the identification of respondent clusters that differed in their level of readiness for change.

3.3. Expert interviews

Expert interviews, conducted in a semi-structured format, enabled the deepening of the survey findings and a better understanding of the contextual determinants of processes. This methodology is consistent with the research approach applied in organisational analyses, in which expert knowledge and the interpretative nature of qualitative data play a significant role (Pregoner, 2024). The interviews focused on identifying key process-related conditions within the company that had been identified in the quantitative research.

3.4. Diagnostic workshop

The workshops were conducted as a form of participatory organisational diagnosis, in line with the assumptions of a dialogical and stakeholder-engaging approach (Kurek et al., 2023). The workshops served to triangulate quantitative and qualitative findings, conduct a maturity assessment using a reference model, identify change priorities, and determine implementation barriers.

The assessment process applied a five-level process maturity model encompassing criteria such as standardisation, efficiency, governance, accountability, and continuous improvement. The results were analysed through moderated discussion, which allowed the development of a shared diagnosis of process awareness and maturity, as well as readiness for change.

4. Research results

The study was conducted in May 2025 in the form of an electronic survey and workshops. A total of 84 employees representing 24 administrative functional areas of the Company participated – ranging from operations and vehicle maintenance, through finance and controlling, to HR, IT, logistics, warehousing, and public procurement.

An analysis of the' length of service of the employees indicated that 42.9% of respondents (36 individuals) have been employed by Koleje Wielkopolskie for more than ten years, a further 22.6% for between three and five years, and only a small number for less than two years. At the same time, 90.5% of respondents possess more than ten years of professional experience, including experience gained outside the Company. This indicates that the study covered a stable workforce with a strong understanding of organisational realities and the capacity to provide reliable assessments of its processes.

4.1. Process awareness

The' awareness of the process of the employees was assessed as very high. More than 92% of respondents declared that they understand the course of key business processes well or very well – including the planning and delivery of transport services, rolling stock and infrastructure maintenance, warehouse management, dispatching, and settlements.

This result indicates a strong embedding of operational knowledge among employees and a high level of practical competencies. At the same time, qualitative data revealed a limited ability to perceive processes from a systemic and interdepartmental perspective. Process knowledge is fragmented and strongly embedded within individual organisational units, which hampers the development of a coherent process architecture and the identification of inter-process dependencies. This represents a typical profile of an organisation that has developed

very rapidly and has only subsequently caught up with organisational structures after the implementation of new responsibilities.

4.2. Data quality and IT support for processes

The assessment of data quality revealed significant variation across functional areas. Higher scores were recorded in highly formalised areas (including public procurement, rail safety, and sales), while lower scores were observed in areas directly related to operational activities, in particular rolling stock maintenance, inspection planning, and parts traceability. Nearly 72% of respondents positively evaluated data in the areas of public procurement, rail safety, and sales; however, information critical from an operational perspective performed significantly worse, including rolling stock inspection and overhaul plans, parts traceability, and data on the production capacity of maintenance facilities. The auditors conducting the study directly linked this to the limitations of the current ERP system, Quatra Max.

The digitalisation of processes proved to be the weakest element. Only 36.9% of employees stated that their area of work is fully supported by an integrated IT system, although as many as 85.7% nevertheless use Quatra Max. However, only 20% of users declared satisfaction with this system. Moreover, 89.3% of respondents admitted that they rely on their own Excel spreadsheets and additional ad hoc data compilations, which leads to the emergence of parallel, unsynchronised sources of information. The report explicitly indicated that further development of the current ERP is poorly justified and that the Company should implement a new, modern, and integrated system, as well as complete the implementation of electronic document management (EDM) and the employee portal.

The widespread use of alternative tools (spreadsheets, local data compilations) indicates a low level of informational integration and the presence of fragmented data sources. To increase the analytical precision of the diagnosis, the identified IT limitations can be differentiated into four interrelated dimensions: system functionality, interface usability, integration architecture, and data governance.

From the perspective of system functionality, the current ERP solution does not sufficiently support several operationally critical processes, including rolling stock inspection and overhaul planning, parts traceability, production capacity planning of maintenance facilities, and flexible generation of management reports and KPIs. As a result, employees compensate for missing or rigid system functions by maintaining parallel spreadsheets and local datasets, which weakens process transparency and increases operational risk.

In terms of interface usability and user experience, the low level of declared user satisfaction (20%) suggests that the system does not adequately support efficient daily work, particularly in data entry, retrieval, and reporting. Limited user-friendliness and restricted analytical capabilities further reinforce the tendency to bypass the system through manual tools, despite the formal availability of the ERP platform.

From an integration architecture perspective, Quatra Max operates largely as a silo application rather than as an integrated process platform. The lack of seamless integration with systems supporting maintenance management, crew scheduling, electronic document management, and analytical reporting prevents end-to-end process visibility and constrains the organisation's ability to synchronise operational planning across functional areas.

Finally, in the area of data governance, fragmented data ownership, inconsistent data standards, and the absence of a single authoritative data repository limit the reliability, completeness, and timeliness of operational information. These shortcomings directly affect parts traceability, maintenance planning accuracy, and the credibility of performance measurement, thereby reducing the organisation's informational maturity.

The convergence of these four dimensions explains why incremental development of the current system is assessed as insufficient and why the recommendation for the implementation of a new, integrated ERP-class solution is grounded not only in user dissatisfaction but also in structural limitations of the existing digital architecture.

4.3. Process formalisation, standardisation, and measurement

From the perspective of process maturity, data on procedures and measurement are also of key importance. A total of 56% of survey respondents confirmed that procedures in their areas are up to date and applied; however, as many as 34.5% admitted that despite being current, they are not used in practice. The findings illustrate that in recent years organisational development has progressed more rapidly than formal internal regulations, and that part of the work is performed based on experience. Process planning in 77% of cases is based on solutions developed during the Company's growth and on employees' knowledge, rather than on uniform standards. In the area of control, 75% of respondents indicated that regular control based on procedures is in place; however, a gap emerges in measurement: 2% of processes are not measured at all, almost 30% are assessed intuitively, and only approximately one third make use of clearly defined KPIs.

The audit report indicates that the first elements of a coherent KPI system are already in place within the Company. In the operations division, key operational indicators are monitored on an ongoing basis, including:

- train punctuality, currently maintained at 95% against a target of 96%,
- alignment of the schedule with passenger needs, assessed at 65% against an expected level of 75%,
- working inventory reserve, currently at 8% for diesel multiple units (DMUs) and 2% for electric multiple units (EMUs), compared with targets of 12% and 10%, respectively,
- the coverage ratio for the demand for the traction crew, currently 88% against a planned level of 110%.

In the areas of procurement and environment, indicators related to order timeliness, number of bids, inventory levels, implementation of the environmental plan, and the number of non-conformities are applied. In the HR department, staff turnover is monitored, among other indicators, – this rate amounted to 5.1% in 2024, which indicates a very stable form of employment and working conditions within the Company.

4.4. Organisational Readiness for Change

The declared readiness for change was assessed as high. Respondents demonstrate openness to process improvement and a clear need to enhance competencies, particularly in the areas of process management and IT tools. The high correlation between declared openness and readiness for change confirms the consistency of employee' attitudes and their adaptive potential. The self-assessment conducted between 14 and 21 May 2025 indicated that the workforce is open to change, but expects training support. More than 88% of respondents declared a need to develop process-related competencies, 65% expect training in process management, and 44% in the use of IT tools supporting such management. At the same time, numerous bottom-up individual improvement initiatives are observed in practice, which indicates a strong potential for the introduction of a culture of continuous improvement. The report also emphasised that the correlation between general openness to change and organisational readiness for change amounted to 0.72, indicating that employees' declarations are consistent with their actual attitudes.

Additionally, the report noted that the Company maintains a very stable level of employment – in 2024, the staff turnover rate amounted to only 5.1%, which is significantly below the threshold considered safe in the rail transport sector. With a total workforce exceeding one thousand employees, this provides a solid foundation for change implementation, while simultaneously increasing responsibility for systematic training: with low turnover, new competencies must be developed internally rather than relying on the inflow of ready-made specialists from the labour market. This applies in particular to the areas of IT, working inventory management, and data analytics, where the largest capability gaps were identified.

Against the background of the above data, weaker areas should also be noted: IT (limited system functionality and reliability), investments and improvements, and interdepartmental communication. In this respect, nearly 40% of employees assessed information flow across the organisation as unsatisfactory. Auditors indicated that the absence of regular interdepartmental meetings and the lack of a central, up-to-date data repository may contribute to limiting the potential for further growth in passenger numbers and more effective planning of rolling stock utilisation.

A more detailed analysis indicates that communication deficiencies are not uniform across the organisation but are concentrated in selected cross-functional processes requiring tight coordination between multiple organisational units. In the area of rolling stock maintenance

and inspection planning, limited data integration and delayed information exchange between operations, maintenance, and logistics constrain the timely alignment of vehicle availability with traffic plans and workshop capacity. Manual reconciliation of schedules and technical data increases the risk of planning inconsistencies and reactive decision-making.

In crew scheduling and operational planning, restricted real-time visibility of rolling stock readiness and fragmented data sources hinder the synchronisation of vehicle deployment with crew availability, which reduces planning robustness and operational flexibility.

Within procurement and spare parts logistics, insufficient feedback loops between maintenance units and purchasing functions affect demand forecasting, parts traceability, and inventory optimisation, leading to longer replenishment cycles and reduced transparency of material consumption.

Finally, in the domain of investment and capacity development, the lack of systematically shared operational performance data limits the ability to align long-term infrastructure and workshop expansion decisions with actual utilisation trends and future service growth scenarios.

These communication failure points illustrate that the identified weaknesses primarily affect end-to-end process coordination rather than isolated functional performance, thereby constraining further progress toward higher levels of process maturity and integrated process governance.

4.5. Organisational constraints and Risises

Key developmental barriers include a low level of integration with the IT system, limited operational data quality, insufficient standardisation of procedures, and inadequate interdepartmental communication. These constraints may significantly affect the organisation's ability to further scale its operations and implement advanced digital solutions.

The synthesised findings indicate a medium–high level of process maturity, along with a clearly observable gap between operational maturity and systemic and informational maturity. The organisation demonstrates high adaptive potential; however, its full exploitation requires the structuring of the process architecture, data integration, and the strengthening of measurement and governance mechanisms.

5. Conclusions

Koleje Wielkopolskie, a regional public rail operator in the Greater Poland (Wielkopolska) region of Poland, has currently achieved a medium–high level of process maturity. Its foundations consist of a stable and experienced workforce, well-functioning transport operations processes, high service quality and safety, and a well-established market position

within the region. At the same time, the organisation has entered a phase in which the previous "organic" mode of development – based on employee' experience and flexible responsiveness – will no longer be sufficient to maintain competitive advantage after 2030, when PSC services will be awarded through competitive tenders.

5.1. Discussion

The findings confirm that the analysed organisation is positioned at a medium–high level of process maturity, which is consistent with the characteristics of organisations experiencing intensive operational growth, while not fully systemically formalised. The high level of employee' process awareness indicates a strong embedding of practical knowledge and the effective functioning of informal coordination mechanisms. From the perspective of process maturity models (BPMM, CMMI, SPICE), such a profile corresponds to a transitional stage between managed and defined maturity, where processes are operationally stable but not yet fully standardised and informationally integrated.

At the same time, the observed fragmentation of process perceptions confirms observations reported in the literature that process knowledge in functional organisations is often local and silo-based in nature, which limits the ability to manage processes end-to-end. This phenomenon hampers the development of a process architecture and the implementation of advanced performance measurement mechanisms, which are prerequisites for progress to higher levels of process maturity.

A significant area of constraints remains the IT support of processes and data quality. Decomposing the IT-related constraints into functional, architectural, usability, and governance dimensions allows a more granular interpretation of the organisation's digital maturity. While operational readiness and employee competencies are relatively advanced, the digital infrastructure lacks the modularity, interoperability, and data discipline required for scalable process orchestration and evidence-based performance management, which is consistent with maturity models emphasising the co-evolution of processes, information architecture, and governance mechanisms. The low level of system integration and the widespread use of alternative tools indicate a discrepancy between the operational maturity of the organisation and its digital maturity. These findings correspond to the assumptions of technology readiness models (TOE, TRAM), which emphasise that even high organisational readiness does not automatically translate into technology absorption capability if the information infrastructure and system architecture are not coherent. In this sense, the analysed organisation demonstrates characteristics of cultural and competence readiness while simultaneously facing technological barriers.

In the area of process formalisation and standardisation, a typical of growing organisations is observed between the dynamics of development and the currency of internal regulations. The dominance of tacit knowledge- and experience-based practices supports short-term flexibility but limits scalability, repeatability, and process transparency in the long term.

From the perspective of process management theory, the absence of clearly defined process owners and an inconsistent KPI system hinders the transition from functional to process-orientated management.

The high level of declared readiness for change, confirmed by the correlation between attitudes and developmental intentions, is consistent with the concept of Organisational Readiness for Change. The organisation exhibits both a psychological component (acceptance, motivation) and a behavioural component (bottom-up improvement initiatives), increasing the likelihood of successful change implementation. At the same time, employment stability strengthens the potential for the accumulation of organisational knowledge, but requires conscious investment in systematic competence development.

At a synthetic level, the findings indicate the existence of a maturity gap in three dimensions: operational, systemic, and informational. The organisation has achieved a high level of operational stability; however, the integration of processes, data, and technologies remains insufficient in the context of future competitive requirements. In line with the BPM literature, further growth in efficiency and adaptive capacity requires a shift from local improvements to systemic management of process architecture, performance indicators, and data.

The findings also confirm the validity of applying methodological triangulation in organisational diagnosis. The combination of quantitative and qualitative data allowed the identification of discrepancies between declared assessments and the actual mechanisms of process functioning, thus improving the validity of the interpretation. In this sense, the study makes a methodological contribution to research on process maturity and readiness for change in public transport sector organisations.

The results obtained are consistent with earlier studies that indicate that the success of process transformation depends not only on technology but also on organisational culture, competencies, and managerial coherence. In the analysed case, the key challenge is not the initiation of change, but rather its coordination and embedding in durable management mechanisms.

5.2. Integration of results

Data triangulation involved the comparison of findings from surveys, interviews, and workshops. This approach enabled mutual validation of observations, identification of discrepancies between employee' perceptions and senior management's assessment, and the development of a multidimensional view of organisational processes.

Integration was based on comparative logic (Kumar et al., 2022), which made it possible to develop a comprehensive diagnosis and recommendations aimed at increasing process maturity and readiness for change.

5.3. Research limitations

Despite its comprehensiveness, the methodology has certain limitations:

- self-assessment in the survey may generate cognitive biases, such as confirmation bias or the halo effect,
- expert interviews may be affected by respondents' subjectivity and power asymmetry, influencing the freedom of expression,
- group workshops may amplify dominant voices, which is consistent with the group conformity effect described in the literature (Janis, 1982),
- the results reflect the state of the organisation at a given point in time and may change in line with environmental dynamics.

Acknowledging these limitations is essential for the appropriate interpretation of the findings and their generalisation.

5.4. Research implications

5.4.1. Theoretical implications

The conducted study contributes to the literature on:

- process management, by confirming the importance of combining quantitative and qualitative methods in assessing process maturity,
- organisational diagnosis, by indicating the role of triangulation as a tool integrating diverse stakeholder perspectives,
- readiness for change, by supporting research emphasising that readiness is a multidimensional construct, dependent on both structural and psychological factors.

The study also confirms observations reported in the literature that perception of processes varies according to organisational role and experience (Mladenova, 2022).

5.4.2. Practical implications

The research findings have significant practical relevance:

- for senior management, they enable the identification of areas requiring improvement and the adjustment of process structures,
- for process owners, they provide data on process effectiveness and the degree of standardisation, which is crucial for planning improvement initiatives,
- for project teams, they help identify barriers to change implementation and determine the level of readiness of individual employee groups,
- for the organisation as a whole – they constitute a starting point for building a programme for the development of process maturity and a culture of continuous improvement.

The necessity of ERP replacement results not only from low user satisfaction but from cumulative structural limitations across functional coverage, interface usability, integration architecture, and data governance, which jointly prevent the establishment of a reliable single source of truth and effective end-to-end process management.

The key actions should proceed in three directions. First, digitalisation and system integration, including the replacement of current ERP-class software with a scalable solution integrated with systems supporting transport planning, train crew working time scheduling, rolling stock maintenance and inspections, electronic document management (EDM), and the employee portal – in order to eliminate duplicate records maintained in Excel and to ensure a single version of the truth for data.

Second, the standardisation and structuring of processes combined with the actual application of procedures, so that every activity has a clearly defined owner, performance indicator, and improvement cycle, and newly employed staff can be incorporated according to a uniform framework.

Third, the establishment of a single and coherent KPI system that refers to four stakeholder groups: passengers (punctuality, comfort, access to information), the transport authority (delivery of operational work, costs), employees (training, system access, service time) and the company's governing bodies (rolling stock efficiency, maintenance costs, resource use).

At the same time, based on the collected research results, it is recommended to establish a permanent process improvement team (e.g. a Lean Process Care Team) which – leveraging the high readiness of the Company's employees for change – would collect ideas from organisational units, structure them, and implement them in short iterative cycles. Such a solution would reduce the barrier of "lack of time for improvements" reported in surveys and interviews.

The implementation of these steps will enable the Company to optimise maintenance cycles financially and operationally (especially after the launch of in-house P4 overhauls from 2026), improve cost transparency and make better use of rolling stock, and above all – to enter the era of a competitive PSC market as an operator that is both process- and technology-ready. In recent months, the Company has already taken a significant step towards improving communication between organisational units and functional areas by changing its organisational structure. The integration of functional areas within divisions is an important measure to strengthen cooperation. Furthermore, the ongoing expansion of the IT division creates an opportunity to tailor IT processes more closely to organisational needs, improve their governance, and enable the modification or acquisition of IT tools supporting the operations of such a dynamically developing carrier in subsequent periods. However, it should be remembered that further areas still require continuous development, as after 2030 the selection of an operator will increasingly depend not only on price, but also on the ability to provide reliable reporting of quality and punctuality, rolling stock readiness, and transparency of maintenance costs. All three elements can only be achieved if processes are documented,

automated, and measured, and if data originate from a single, coherent system. Otherwise, even a carrier that is currently well evaluated may lose to an entity that is more structured in terms of both internal communication and cost management. This constitutes a real strategic risk for the Company

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