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BUSINESS PROCESS AUTOMATION: CASE STUDY ON BENEFITS AND IMPLEMENTATION BARRIERS

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Purpose: The purpose of this paper is to analyse the impact of business process automation on the functioning of an industrial enterprise in the context of digital transformation.
Design/methodology/approach: The paper is based on a qualitative case study supported by a literature review. The research methods included analysis of internal company documentation, workplace observation, and in-depth semi-structured interviews with key managers.
Findings: The results indicate that business process automation significantly improves operational efficiency in the company. Automation reduced the time required to complete repetitive tasks (e.g., invoicing, order processing, inventory management), improved data quality and availability, enhanced cross-departmental cooperation, and increased customer service quality; moreover, it strengthened the company's ability to make data-driven decisions in real-time.
Research limitations/implications: The main limitation of the study is its single-case nature, which restricts the generalisation of results to other organisations and industries. The research is based on qualitative interviews with a limited number of respondents. Future studies should include comparative analyses across multiple companies and sectors and incorporate quantitative performance indicators to measure the long-term economic effects of automation.
Practical implications: The study highlights the importance of process standardisation, employee training, effective change management, and close cooperation with the implementation partner. The results demonstrate that automation can lead to reduced cost, greater efficiency, scalability of operations, and improved customer satisfaction.
Social implications: Automating business processes influences the work organisation and employee roles by reducing routine tasks and increasing the demand for digital competencies.
Originality/value: The paper provides an in-depth empirical insight into the real-life implementation of an ERP system in a medium-sized industrial enterprise in the Polish market. Contributes to the literature by combining theoretical aspects of digital transformation with practical evidence from business process automation in manufacturing.
Keywords: business process automation; digital transformation; ERP systems; Microsoft Dynamics 365; process management.
Category of the paper: research paper, case study.

1. Introduction

Digital transformation has become one of the most important strategic challenges for contemporary enterprises operating in an increasingly dynamic, competitive, and technology-driven business environment (Anggraito et al., 2025; Lin, 2025; Gkika et al., 2025; Yu et al., 2022). Rapid technological progress, growing customer expectations, globalisation, and pressure for operational efficiency require organisations to continuously adapt their structures, processes, and business models. In this context, business process automation is widely recognised as a crucial enabler of digital transformation and a key driver of organisational performance and competitiveness.

Business process automation involves the use of advanced information technologies—such as Enterprise Resource Planning (ERP) systems, Customer Relationship Management (CRM) platforms, Robotic Process Automation (RPA), cloud computing, and artificial intelligence—to streamline operations, eliminate manual and repetitive tasks, and optimise information flows within organisations (Katsonis et al., 2019; Abdelwahab, Helal, 2023; Kukharenko, Mankov, 2022; Garad et al., 2024; Guerrero et al., 2025; Ermolaev, Guseva, 2024). The implementation of such solutions allows enterprises not only to reduce operating costs and minimise the risk of human error, but also to increase speed, transparency, data quality, and customer service effectiveness. As a result, automation has evolved from a purely technological initiative to a strategic tool that supports long-term organisational development.

In manufacturing and industrial enterprises, the importance of automation is particularly evident. These organisations face complex production structures, extensive supply chains, large volumes of transactional data, and strict quality and regulatory requirements. Digital technologies enable real-time monitoring of operations, better coordination between departments, improved resource planning, and faster response to market changes (Kozma et al., 2024; Moreira et al., 2024; Jyothi et al., 2024). Consequently, business process automation plays a fundamental role in the transition toward Industry 4.0, smart manufacturing, and data-driven management.

Despite the undeniable benefits, the implementation of automation and digital transformation is a complex and challenging process. Organisations must address not only technical issues such as system integration, data migration, and cybersecurity, but also organisational and social aspects, including change management, employee resistance, and the need for continuous development of digital competences (Mishra et al., 2019; Jyothi et al., 2022; García-Vidal et al., 2025).). Many digital transformation projects do not fully achieve their intended goals due to insufficient preparation, lack of strategic alignment, or inadequate employee involvement. Therefore, empirical research on real-life implementation processes remains highly relevant for both theory and managerial practice.

This paper addresses these issues by analysing the implementation of business process automation in a medium-sized industrial enterprise from the chemical sector operating in Poland. The study focusses on the implementation of the ERP system as a key element of the company's digital transformation strategy. The main objective of the paper is to evaluate the impact of business process automation on organisational performance, efficiency, and innovation, as well as to identify the benefits and challenges associated with the implementation process.

The contribution of this study lies in its empirical, practice-orientated perspective, combining theoretical insights into digital transformation and process automation with an in-depth case study of an actual ERP implementation. The purpose of the paper is to provide valuable knowledge for researchers and practitioners involved in planning and managing digital transformation initiatives in industrial enterprises.

2. Literature review

2.1. 2.1. Digital transformation as a strategic organisational process

Digital transformation is commonly defined as the comprehensive integration of digital technologies into all areas of an organisation, resulting in fundamental changes in business processes, organisational structures, and value creation models (Kawalec, 2021; Ostrowski, 2022). Unlike digitisation, which refers to the conversion of analogue data into digital form, and digitalisation, which focusses on automating existing processes, digital transformation entails a holistic reconfiguration of organisational strategy and culture.

The literature emphasises that digital transformation is no longer a purely technological initiative but a strategic imperative that influences competitiveness and long-term growth (Britchenko, 2024; Chądrzyński et al., 2021). Modern enterprises operate in an environment characterised by rapid technological change, high customer expectations, and increased market volatility. As a result, digital transformation enables organisations to improve flexibility, improve decision-making, and build a sustainable competitive advantage.

A crucial element of digital transformation is the use of advanced digital technologies such as cloud computing, artificial intelligence (AI), big data analytics, and the Internet of Things (IoT). These technologies support real-time data processing, automated complex operations and predictive decision-making (Puślecki, 2021; Marzec, Olszowy, 2024). Gartner forecasts confirm that AI is becoming a central investment area for modern enterprises, shaping the architecture of contemporary IT systems.

Digital transformation also significantly affects organisational culture and human capital. Employee' openness to innovation, continuous learning, and the development of digital competencies are considered key success factors (Parviainen, 2017; Kotarba, 2022). Resistance to change and shortages of digital skills remain among the most frequently reported barriers.

2.2. **2.2. Technological innovation versus digital transformation**

The literature clearly distinguishes between technological innovation and digital transformation. Technological innovation refers to the implementation of specific tools, systems, or solutions that improve selected areas of organisational functioning (Łazarz, 2023). In contrast, digital transformation represents a systemic change throughout the organisation that encompasses strategy, business models, processes, and organisational culture.

An enterprise may implement technological innovations—such as CRM systems or analytical platforms—without undergoing full digital transformation. However, digital transformation always involves coordinated technological innovation embedded within a broader strategic framework (Teece, 2018). The main distinction lies in the scale, scope, and strategic impact of these processes.

Digital transformation is widely perceived as a multi-stage, continuous process. According to Teece (2018) and Kotler (2021), organisations typically progress from initial digitisation through formalisation, strategic integration, convergence, and ultimately full digital maturity. Schwab's concept of the Fourth Industrial Revolution further emphasises the unprecedented pace of technological change and the growing integration of cyber-physical systems, AI, and automation into economic activity.

Despite its benefits, digital transformation poses numerous challenges. Cultural resistance to change, insufficient digital competencies, integration of legacy systems, and cybersecurity risks are among the most significant obstacles (Mądry, 2021; Univio, 2025). Manufacturing enterprises face additional constraints due to complex technological infrastructures and high capital intensity. However, the literature consistently confirms that successful digital transformation leads to higher productivity, flexibility, innovation, and customer satisfaction (Czepiel, 2025; Sufin, 2024).

The concept of business processes has evolved since the early works of Smith (1776), Taylor (1919), and Gantt (1910), who emphasised task specialisation, standardisation, and work efficiency. Contemporary process management is grounded in quality-orientated methodologies such as Total Quality Management (TQM) (Deming, 2000), Six Sigma (Lis, Ratajczak, 2014), Lean Manufacturing (Pomietlorz, 2014), and Business Process Reengineering (Borawska, 2012).

A business process is generally defined as a structured sequence of interrelated activities that transform inputs into outputs delivering value to the customer (Davenport, 1993; Hammer, Champy, 1996; Skrzypek, Hofman, 2010). Modern definitions emphasise customer orientation, cross-functional integration, and measurable performance results.

Process orientation assumes that organisations should be managed through end-to-end processes rather than functional silos (Nowosielski, 2008; Jedynak, 2019). The key principles include customer focus, result orientation, decentralisation of management, teamwork, and continuous improvement. Empirical studies confirm that process orientation improves operational efficiency and organisational adaptability.

Business processes are commonly classified into core and supporting processes (Porter, 1985). Core processes directly generate customer value and include operations, logistics, marketing, sales, and after-sales service. Supporting processes—such as human resource management, IT infrastructure, and finance—enable the effective execution of core activities.

More comprehensive frameworks, such as the Process Classification Framework (PCF) developed by APQC, provide detailed categorisations of organisational processes across operational and managerial dimensions (Ossowski, 2012). Regardless of the classification model, proper identification and structure of processes is a prerequisite for successful automation and digital transformation.

Business process automation is defined as the use of digital technologies to automate repetitive rules-based tasks previously performed manually (Remlein, 2024). Automation is commonly implemented through ERP systems, RPA tools, workflow platforms, and integrated analytical systems.

The literature highlights numerous benefits of automation, including cost reduction, time savings, improved data quality, higher process reliability, and improved customer service (Remlein et al., 2024; Butryn, Hauke, 2018). Automation also enables employees to move from routine work to more value-adding and analytical tasks, increasing job satisfaction and organisational innovation.

At the same time, automation entails significant risks, including job displacement, technological dependency, digital exclusion, cybersecurity threats, and high implementation costs (Remlein, 2024; Chumphong et al., 2020). Successful automation therefore requires careful planning, strong managerial support, employee participation, and continuous monitoring of outcomes.

ERP systems are recognised as one of the most important technological infrastructures that supports automation and digital transformation. They enable the integration of data and processes across functional areas, support real-time reporting, and facilitate coordinated decision-making. Cloud-based ERP solutions, such as Microsoft Dynamics 365, further increase scalability, accessibility, and analytical capabilities.

The literature confirms that the implementation of ERP significantly improves operational efficiency, transparency, and cross-departmental collaboration, provided that organisational readiness and change management are addressed adequately (Jelonek et al., 2019; Puślecki, 2024).

3. Material and Methods

3.1. Objective and research design

The study adopts a qualitative research design based on a single case study approach. This method was selected because of its suitability for in-depth analysis of complex organisational phenomena occurring in real-life business environments. The research focusses on the implementation of business process automation through an ERP system in a medium-sized industrial company operating in the chemical sector in Poland. The case study approach allowed for a comprehensive examination of both both technological and organisational aspects of digital transformation. The research was conducted in the first half of 2025 and followed a structured research plan that included literature analysis, empirical data collection, and qualitative data analysis.

The main objective of the study was to assess the role and effects of business process automation as a key element of digital transformation in an industrial enterprise. The detailed research objectives included:

- Defining the role of process automation in accelerating digital transformation.
- Analyse the course of implementation of the ERP system, including preparation, execution, and evaluation of effects.
- Identifying the key benefits resulting from automation, such as improvements in customer service and innovation.
- Examining the main challenges and limitations associated with the implementation of process automation.

The subject of the research was the implementation and operation of the Microsoft Dynamics 365 system, while the object of the study was ADLER Polska as the enterprise undergoing digital transformation.

3.2. Data collection methods

To ensure methodological triangulation and improve the credibility of the findings, several qualitative research methods were applied:

Literature analysis (desk research): An extensive review of scientific publications, industry reports and online sources was conducted to develop the theoretical background of the study. The literature review focused on digital transformation, process management, business process automation, RPA, and ERP systems.

Analysis of internal company documentation: Internal documents provided by the company were analysed to gain insight into the structure of business processes, the scope of the ERP implementation, project documentation, and implementation schedules. This allowed for

a precise identification of the stages of system deployment and the organisational changes introduced.

Workplace observation: Direct observation of operational activities was conducted in the company's branches in Bydgoszcz and in Poznań. This method enabled the researcher to become familiar with the daily functioning of key departments and observe changes in the organisation of work after automation.

In-depth semi-structured interviews: Individual in-depth interviews constituted the main source of empirical data. Three interviews were conducted with key management representatives. The interviews were conducted online in June 2025 using a videoconferencing platform. Each interview was semi-structured, based on a prepared interview scenario, and lasted approximately 80 minutes. All interviews were conducted with the informed consent of the respondents and recorded for research purposes. The interview scenario covered seven thematic areas: introduction, digital transformation in the company, implementation of the ERP system, impact of automation on company operations, barriers and challenges, assessment and future prospects, and summary.

3.3. Data analysis and research limitations

Qualitative data obtained from interviews, observations, and document analysis were subjected to thematic content analysis. The analytical process included the transcription of interviews, the coding of statements, the identification of recurrent patterns, and the categorisation of the findings according to the main research objectives.

The analysis focused on the process of implementation of the ERP system, organisational and technical challenges, measurable and perceived benefits of automation, employee adaptation and change management, future development perspectives of digital transformation.

The results of different data sources were compared to ensure consistency and strengthen the validity of the findings.

The study has several limitations. First, the research is based on a single case study, which restricts the possibility of generalising the results to other organisations and industries. Second, the qualitative nature of the study and the limited number of interviewees can introduce a degree of subjectivity. Third, at the time of the investigation, the ERP system had been implemented only recently; therefore, the long-term economic and performance effects could not yet be fully assessed.

Despite these limitations, applied research design allows an in-depth understanding of the process of implementing business process automation in an industrial company and provides valuable insights for both theory and managerial practice.

4. Research Results

4.1. Characteristics of the implemented system

The analysed enterprise implemented the Microsoft Dynamics 365 system as an integrated cloud-based ERP and CRM platform supporting key business areas, including sales, finance, logistics, warehousing, production planning, and customer service. The system is based on a modular architecture, which allowed the company to gradually implement functionalities tailored to its operational needs. The primary objectives of the implementation were process automation, data centralisation, improvement of information flow, and improvement of decision-making based on real-time data.

The implemented solution enabled full integration of transactional, financial, and operational data within a single digital environment. Automation covered processes such as order processing, inventory control, invoicing, reporting, purchasing, and production planning. The system also introduced advanced analytical tools that support managerial reporting and performance monitoring.

The implementation of the ERP system was carried out in successive stages according to the adopted project methodology. The process started with a detailed analysis of organisational needs and existing business processes. This was followed by system design, configuration, data migration from legacy systems, testing, and employee training.

Key organisational units—sales, warehouse, finance, and logistics—were actively involved throughout the implementation process. Considerable emphasis was placed on preparing employees for technological change through training sessions, consultations, and ongoing support. This approach significantly reduced resistance to change and facilitated a smoother transition to the new system.

The project was implemented according to the planned schedule, although it required close cooperation with the implementation partner and continuous monitoring of progress to minimise technical and organisational risks.

4.2. Effects and benefits of business process automation

The research results indicate that the implementation of Microsoft Dynamics 365 had a significant positive impact on the operational functioning of the company. The main benefits identified by the respondents include:

- Increased operational efficiency: Automating repetitive tasks such as invoicing, order processing, and inventory management reduced processing time and eliminated many manual activities. The employees were able to focus on more analytical and customer-orientated tasks.

- Improvement in data quality and availability: Centralisation of information in one integrated system improved data consistency, reduced duplication, and enabled real-time access to up-to-date operational and financial data.
- Enhanced customer service quality**:** Faster order processing, improved availability of customer information, and better coordination between departments translated into more flexible and responsive customer service.
- Cost reduction: Automatization of routine operations and better control over inventory and finances resulted in the first observable reductions in administrative and operational costs.
- Improved cross-departmental cooperation**:** Integration of processes within a single platform facilitated communication and coordination between departments, particularly between sales, logistics, and finance.

According to the respondents, the first measurable effects included time savings in transactional processes, reduction of human errors, and gradual improvement of service quality. Although long-term financial effects were still under observation at the time of the study, the initial results clearly confirmed the economic and organisational value of automation.

4.3. Challenges and limitations of the implementation

Despite the overall success of the project, several significant challenges were identified during the implementation of business process automation.

- Complexity and scale of implementation: The large scope of the ERP system and the number of departments involved significantly increased the complexity of the project and the coordination requirements.
- Data migration and system integration: Transferring large volumes of data from legacy systems and ensuring compatibility with existing IT infrastructure was one of the most technically demanding phases of the project.
- Process standardisation: Automation required the unification and formalisation of business processes. The presence of numerous non-standard procedures and exceptions initially hindered the configuration of automated workflows.
- Change management and employee resistance: The introduction of the new system required changes in daily work habits. Initial concerns among employees about increased control or technological complexity were observed, although gradually mitigated through training and communication.
- Schedule and budget control: As with most ERP projects, maintaining the planned timeline and budget required continuous supervision and flexible response to unexpected difficulties.

These challenges confirmed that business process automation is not only a technological undertaking, but also a profound organisational change requiring strong managerial engagement and effective change management.

4.4. Evaluation of the system and future development perspectives

The general assessment of the implementation of Microsoft Dynamics 365 by company managers was clearly positive. The respondents emphasised the smoothness and safety of the implementation process, as well as the visible improvement in daily operational activities. Automation was perceived not only as a tool for cost optimisation, but also as a driver of innovation and organisational learning.

The system created a solid foundation for the further digital development of the company. The company plans to expand the use of advanced analytical tools, increase the scope of automation, and integrate additional digital solutions that support production and supply chain management. The respondents also emphasised the importance of continuous development of the' digital competencies of the employees to fully exploit the potential of the implemented system.

5. Discussion and Conclusions

5.1. Discussion

The results of the study confirm that business process automation constitutes a fundamental pillar of digital transformation in contemporary industrial enterprises. The case of ADLER Polska demonstrates that the implementation of an integrated ERP system can significantly improve operational efficiency, data quality, and cross-departmental coordination, which is consistent with the findings reported in the literature on digital transformation and ERP systems.

The observed benefits of Microsoft Dynamics 365—such as automation of repetitive tasks, real-time access to data, improved customer service quality, and improved decision-making—correspond closely with prior research emphasising the strategic role of ERP systems in process integration and organisational performance. The literature consistently highlights that ERP systems enable transparency, standardisation, and synchronisation of processes across functional units, which was also evidenced in the analysed enterprise.

The study also confirms that the success of automation initiatives depends not only on technological aspects but also on organisational and social factors. The challenges identified in the implementation process—such as data migration, process standardisation, change management, and employee resistance—align with previously reported barriers to digital

transformation. This confirms that automation projects should be treated as complex organisational change processes rather than purely IT implementations.

Employee participation, systematic training, and continuous communication proved to be key success factors in mitigating resistance to change. These findings support the view that human capital and organisational culture are decisive determinants of successful digital transformation. The results further indicate that early visible benefits of automation—such as time savings and reduction of manual errors—play an important motivational role and strengthen the acceptance of new technologies among employees.

From a strategic perspective, the implementation of Microsoft Dynamics 365 contributed not only to cost optimisation, but also to strengthening the company's readiness for further digital development. The system created a digital infrastructure that enables scalability, advanced analytics, and long-term innovation. This confirms that business process automation should be perceived as an investment in organisational resilience and competitiveness rather than as a short-term efficiency tool.

5.2. Conclusions

The main objective of this study was to assess the impact of business process automation as a key element of digital transformation in an industrial company, using the example of Microsoft Dynamics 365 implementation in ADLER Polska. The research carried out allowed for the achievement of all specific research objectives and provided empirical evidence confirming the positive organisational effects of automation.

The findings demonstrate that business process automation significantly improved the operational functioning of the company in areas such as sales, logistics, warehousing, finance, and customer service. Integration of processes within a single ERP platform enabled real-time data access, increased transparency of operations, and supported faster, more accurate decision-making. Automation also reduced the workload associated with repetitive tasks, which positively influenced employee efficiency and job quality.

At the same time, the study confirmed that automation projects involve substantial technical and organisational challenges. The complexity of ERP implementation, data migration issues, the need for process standardisation, and the need for effective change management constitute critical risk areas. The experience of ADLER Polska indicates that these challenges can be successfully overcome through careful planning, strong managerial commitment, employee involvement, and close cooperation with the implementation partner.

From a practical perspective, the study provides clear managerial implications. Enterprises planning digital transformation initiatives should treat automation as a strategic organisational change rather than a purely technological upgrade. Particular emphasis should be placed on change management, employee training, and the continuous development of digital competencies. In addition, early identification and standardisation of business processes significantly improve the effectiveness of ERP-based automation.

The study is subject to certain limitations, primarily related to its qualitative nature and single-case design, which restricts the generalisation of the results. Future research should include comparative studies across multiple industries and integrate quantitative performance indicators to assess the long-term economic impact of automation.

In conclusion, the automation of business processes implemented through modern ERP systems constitutes a crucial driver of digital transformation in contemporary enterprises. The case of ADLER Polska confirms that properly designed and managed automation projects can generate measurable operational benefits, improve organisational agility, and strengthen long-term competitive advantage in a dynamically changing market environment.

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