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OFFICE WORK AUTOMATION: IMPLEMENTATION, COSTS, AND BENEFITS. A CASE STUDY

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Purpose: This paper explores the role of office automation in enhancing operational efficiency and competitive advantage for enterprises, particularly in the supply and material sector. The research seeks to analyze the cost-benefit balance of automation, examine its impact on employee tasks, and provide actionable guidelines for managers considering automation.
Design/methodology/approach: Using a qualitative, case-study approach, the authors conducted unstructured interviews with key personnel, including the CEO and IT department members, at a Polish supply company. This was supplemented by participant observations and document analysis to gain insights into automation processes, its applications in various office functions, and implementation challenges.
Findings: The study revealed that automation significantly enhances efficiency, reduces operational costs, and improves internal and external communications. However, it also highlighted challenges, such as resistance from employees and the high costs of system integration and customization, which impact the adoption rate across diverse functions.
Research limitations/implications: The study is qualitative nature limits its generalizability, suggesting the need for further quantitative research across varied industries. Future studies might explore the long-term economic impact of automation and the effectiveness of training programs in overcoming employee resistance.
Practical implications: The findings underscore the importance of tailored automation strategies to streamline routine tasks and improve employee productivity. Practical benefits include better resource allocation, faster response times, and improved customer satisfaction, providing businesses a strategic advantage in dynamic markets.
Social implications: The paper indicates potential social impacts, such as shifts in workforce skill requirements and the need for continuous employee retraining. Automation could influence job roles, thus impacting employee morale and necessitating adjustments in corporate social responsibility practices.
Originality/value: This study provides original insights into the practical challenges and benefits of office automation in a specific business sector, making it valuable for business managers and decision-makers seeking to implement or expand automation in their organizations.
Keywords: Office automation, operational efficiency, cost-benefit analysis, employee resistance, competitive advantage.
Category of the paper: case study.

1. Introduction

Office automation is becoming an increasingly crucial component of the development strategies of modern enterprises, aimed at streamlining and simplifying various operational processes. In today's dynamic business environment, where competition is intensifying and customer demands are growing, companies must continually seek ways to enhance efficiency and reduce costs. In practice, automation involves the implementation of modern technologies such as robotics, artificial intelligence, and other advanced systems that replace routine, repetitive tasks previously performed by humans. Automation contributes to increased productivity, error reduction, and improved quality, which in turn impacts the overall operational efficiency of the enterprise.

Automation of office processes, particularly in the context of human resource management, finance, customer service, and logistics, is a significant step toward increasing the competitiveness and innovation of contemporary firms. Through automation, enterprises can shorten process execution times, improve task quality, and minimize the risk of human error. It also enables better management of company resources, both human and material, by optimizing work schedules, monitoring efficiency, and automatically generating reports.

The introduction of automation also enhances internal and external communication, facilitating collaboration between departments and with business partners. In the context of customer service, automation allows for better management of customer relationships by collecting and analyzing data on customer preferences and behaviours, which in turn enables the personalization of offers and improvement of customer satisfaction. Automated service systems can also address frequently asked questions, reducing the burden on customer service departments and allowing employees to focus on more complex issues.

Automation is also reflected in the accounting and financial sectors, impacting areas such as invoice processing, payment management, and financial reporting, thereby increasing the precision and speed of these operations. In the procurement department, automated systems can monitor inventory levels in real-time, generate replenishment orders, and analyze supplier data, leading to more efficient supply chain management.

Therefore, office automation is a key element in the development strategies of modern enterprises, leading to significant improvements in operational processes, increased efficiency, cost reduction, and enhanced customer service quality. The implementation of modern automation technologies is essential for companies that aim to remain competitive in the market and effectively respond to changing business conditions.

This paper presents the theoretical justification and practical implications of implementing automation in the operational and office activities of a company operating in the supply and material market. It adopts three goals, including:

1. Theoretical: to explain the concept of office automation from the perspective of various theories.
2. Empirical: to discuss the problems and benefits, as well as the use of office process automation in a company operating in the supply and material market.
3. Applicational: to formulate recommendations and guidelines for implementing automation in enterprises.

The paper also aims to provide practical guidelines that can be used by managers and decision-makers in the process of planning, implementing, and optimizing office process automation.

2. Office Automation: theoretical implications and implementation practices

The implementation of automation in the operational and office activities of enterprises is justified by several theories, including the Resource-Based View (RBV), the Theory of Resistance to Innovation, and the Unified Theory of Acceptance and Use of Technology (UTAUT).

From the perspective of the Resource-Based View (RBV), the focus is on utilizing and optimizing the internal resources of an organization to achieve a sustainable competitive advantage. RBV posits that a firm's resources, which are valuable, rare, inimitable, and well-organized (VRIO), can form the basis for long-term success. Automation fits within this context by enabling firms to better manage their resources and increase operational efficiency. As a key element of a strategy based on RBV, automation allows firms not only to improve operational performance and reduce costs but also to enhance innovation and flexibility, which are essential for maintaining competitiveness in a dynamically changing market (Moderno, Nascimento, Gomes, 2021).

The implementation of business process automation often encounters resistance, as explained by the Theory of Resistance to Innovation. This theory suggests that employees may resist new technologies for various reasons, such as fear of job loss, lack of trust in new systems, or adherence to traditional work methods (Talvar, 2020; Frank, Chrysochou, Mitkidis, 2021; Chu, 2023). In the context of automation, employees may fear that automated systems will replace their roles, leading to uncertainty and stress. Additionally, the lack of appropriate training and support can exacerbate these concerns, as employees may feel incompetent in handling new technologies. To effectively implement automation, organizations must consider these factors and undertake actions such as transparent communication, education, training, and support to reduce resistance and ensure a smooth transition to new systems. It is also crucial

to involve employees in the implementation process, what can increase their sense of control and acceptance of changes.

From the perspective of the Unified Theory of Acceptance and Use of Technology (UTAUT), the automation of business processes helps to understand the factors influencing the acceptance and use of new technologies in organizations. Key considerations include the impact of expected performance, where benefits such as increased operational speed and error reduction motivate employees to accept technology. The expected ease of use of the technology is also significant, especially considering that the intuitiveness and user-friendliness of automated systems affect their acceptance (Marikyan, Papagiannidis, 2023). Furthermore, support from colleagues plays an important role, as recommendations, opinions, and positive feedback from coworkers can encourage technology adoption. The experience and freedom of use are also important. Users with more technological experience are generally more inclined to use new technologies. It is also important to minimize concerns related to the loss of control over processes or data security through appropriate communication and training strategies.

In the simplest terms, automation refers to the process of using modern technologies to perform various tasks that were previously carried out by humans (Pawlak, 2007). This encompasses the implementation of robots, artificial intelligence, and other advanced technologies to execute routine, repetitive tasks, thereby improving efficiency and reducing the need for human intervention (Josten, Lordan, 2022), as well as mitigating the psychological and physical engagement of individuals. Siderska (2020) suggests that the essence of automation should be considered from the perspective of the context to which it applies. This approach allows for viewing business process automation from the perspective of modern technology, which introduces innovations and improvements in companies, a set of programmable tools that perform and mimic human actions, and a methodological approach that reduces the scope of simple, repetitive, and routine tasks.

Automation, as a modern technology, introduces innovations and improvements in enterprises by utilizing advanced systems and tools to perform tasks traditionally done by humans. This transformation is evident in various aspects of business operations, from error reduction and quality improvement to cost savings, error reduction, safety enhancement, scalability, and overall efficiency and productivity (Dubey, Singh, B., Singh, D., 2023). Savona et al. (2022) highlight that digital automation is particularly crucial in the process of enhancing business operations, serving as a cornerstone of contemporary technological progress. According to the authors, its significant advantage is the ability to work continuously without fatigue, ensuring a constant pace of production or work, while maintaining high-quality outcomes. Consistent efficiency directly influences productivity growth and ensures that companies can meet the high demands of the market. Despite the undeniable advantages of technological automation, reliance on advanced solutions may lead to dependency on specialized technical skills (Llale et al., 2020). The authors argue that this necessitates ongoing training in the operation and maintenance of automated systems. In some cases, this can

contribute to a mismatch between the skills required for specific job positions and the actual competencies possessed by the workforce. This may lead to labour market mismatches, where there are vacancies related to advanced technologies but a lack of qualified candidates to fill them. Moreover, the rapid pace of technological change necessitates continuous learning and adaptation, which can be burdensome for both employees and employers (Murphy, 2023). Automated systems are typically designed to perform specific tasks, which can limit their flexibility. When business processes change or need to adapt, automated systems may not be able to adjust as quickly as humans. This lack of flexibility can lead to operational challenges, particularly in dynamic environments where adaptability and quick response times are critical. Additionally, integrating automation with existing processes can be complex and time-consuming, requiring significant changes in workflows and potentially causing disruptions during the transition period.

Automation can also be viewed from the perspective of programmable tools related to transformations in modern manufacturing or services. The programmable technologies encompass a range of tools and systems designed to enhance the efficiency, precision, and flexibility of various processes. These tools integrate computer science with manufacturing engineering, enabling machines to perform tasks that traditionally required human intervention (Kandray, 2010). Programmability offers numerous benefits to enterprises, including increased efficiency and productivity, greater precision and quality, flexibility and adaptability, cost savings, and enhanced safety (Radke, Dang, Tan, 2020; Breton, Bosse, 2002; Lahtinen, Mahlamäki, Myllärniemi, 2023).

Siderska (2020) points out that a critical aspect of the methodological approach is the identification of appropriate business processes for automation. According to the author, ideal processes are highly repetitive, rule-based, and involve structured data. Selecting the right processes for automation is crucial to avoid inefficiencies and ensure proper implementation. As highlighted, office process automation is defined as the application of programmable tools to automate repetitive, rule-based tasks that were previously performed by humans. In practice, this involves the use of tools such as robotics (Zieliński, 2022), business process management systems (BPM) (Kwiecień, 2017), robotic process automation (RPA) software (Doguc, 2020), as well as artificial intelligence (AI) (Ślusarczyk, 2021) and machine learning (ML) (Sajja, 2022). These tools find wide application in various areas of business operations, from office work, customer service, human resources, accounting, through financial management and liquidity, to production, warehousing, and quality control processes.

Automation in finance and accounting significantly enhances operational efficiency by eliminating manual, time-consuming tasks, thereby reducing costs and minimizing the risk of errors. In the area of accounts receivable and payable, automated systems can perform accurate and rapid postings, speeding up the cash conversion cycle. Invoices can be automatically generated and sent, and ERP systems can flawlessly reconcile accounts and match invoices with purchase orders, reducing the risk of discrepancies and streamlining the month-end closing

process (Kroll et al., 2016; ABSL, 2020; Borowiec, 2022; Remlein et al., 2022). In finance and financial resource management, automation enables efficient liquidity management, investment optimization, and effective financial risk management (Gotthardt et al., 2019; Kaya et al., 2019).

In planning and budgeting, automation allows for more precise financial forecasting and better cost control, enabling companies to respond more quickly to market changes (Kaya et al., 2019). In auditing, automated tools can process large volumes of data in a short time, identifying potential irregularities and supporting auditors in risk analysis (Huang et al., 2019; Moffitt et al., 2018; Rozario, Vasarhelyi, 2018). Automation of tax processes and their settlements not only ensures compliance with regulations but also enables continuous monitoring and reporting of tax liabilities, which is crucial for avoiding penalties and optimizing taxation (Mezzio, Stein, R., Stein, S., 2019; Łada, Mierzejewska, 2021; Remlein, Jastrzębowski, Obrzeżgiewicz, 2022b).

Automation in procurement, production, and warehousing significantly improves the efficiency and precision of operations in these areas. In procurement, automated management systems can monitor inventory levels in real-time, generate replenishment orders, and analyze supplier data to optimize costs and delivery times (Otundo, 2021; Chopra, 2018). In production, automation allows for precise planning and execution of production processes, reducing downtime and minimizing waste. Automated production lines can operate continuously, ensuring consistent product quality and increasing production efficiency (Hermaniuk, 2021; Beigi, 1997; Syreyshchikova et al., 2020).

In warehousing, automated warehouse management systems (WMS) can control the receipt, storage, and dispatch of goods, optimizing warehouse space and reducing the time needed to fulfil orders. Warehouse robots can move products, complete orders, and prepare them for shipment, increasing the speed and accuracy of logistics operations (de Koster, 2015; Nilsson, Merkle, 2015). Through automation, companies can not only increase the efficiency of their processes but also better respond to changing market conditions and customer needs.

3. Research methodology and characterization of the studied entity

The issue addressed in this article has an exploratory-explanatory nature, which requires the use of qualitative research methods. These methods involve examining the nature of the analyzed phenomena, their manifestations, symptoms, and contexts, while omitting strict frameworks, frequency, systematicity, and place within a clearly defined chain of cause and effect (Ugwu, Chinyera, Eze, 2023). The essence of qualitative research lies in its ability to provide complex, multifaceted textual descriptions that explain experiences, feelings, and beliefs concerning a specific research problem.

The study on office process automation was conducted using qualitative method triangulation, in the form of a case study involving interviews: unstructured, in-depth, and focused, with the chief executive officer (CEO) of a company operating in the material and technical supply market in Poland, as well as with IT department employees responsible for planning, implementing, and controlling processes related to work improvement. The study was enriched with an analysis of company documentation, including reports and statements, as well as participant observation involving the testing of some implemented solutions. Participant observation entailed active participation and monitoring of daily operations within the company, with an emphasis on automation processes. At an individual level, the authors integrated with operational and technical teams to directly experience and analyze the implementation and functioning of automation systems.

It should be noted that the form of the focused, open interview allowed respondents to freely express their views beyond standard questions, resulting in numerous opinions and positions from the business representative regarding the automation of office processes and their impact on the company's operational activities. The conducted interview primarily focused on:

- diagnosing and assessing the current state of the company concerning office process automation,
- characterizing activities related to the implementation of work improvement processes,
- evaluating the costs, benefits, and risks of office work automation,
- identifying future actions and development perspectives in the context of office work automation.

The results of the conducted interviews were recorded, transcribed, and subjected to content analysis.

The development perspective of office work automation was illustrated through a company engaged in material and technical supply, headquartered in Poznan. The company was founded in the early 1990s and is considered a modern and dynamically operating entity in both the domestic and international markets. During the interview, the CEO emphasized that the company is highly innovative and flexible in introducing new products, services, organizational changes, and technical advancements, while seeking new markets and supply sources.

The primary domain of activity is related to the wholesale supply of spare parts to the industry. The core offering includes bearings, both rolling and linear, drive belts and wheels, conveyor belts, hydraulic hoses, chains and sprockets, tools, seals, and gaskets. The company also produces specialized components and tools and provides a wide range of professional production services in comprehensive industrial and technical supply, maintenance, storage, including strategic inventory, service, warranty and post-warranty service, training and workshops, transport, maintenance, diagnostics, assembly and disassembly, and consultancy.

The company operates in both the original equipment manufacturer (OEM) market and the maintenance, repair, and overhaul (MRO) market, with the latter accounting for about 75% of the revenue. The MRO market is considered highly specialized, requiring extensive knowledge of machine and device construction, as well as the characteristics, properties, and parameters of the offered parts. To ensure the highest level of delivered supplies and services, the company holds authorized representation of leading domestic and international spare parts manufacturers.

Deliveries and services are executed through an extensive sales network, with 18 branches located mainly in major industrial centres across Poland. Alongside the sales network development, the company places great emphasis on its employment structure, currently employing 138 highly qualified individuals whose qualifications are continually enhanced through various studies, trainings, workshops, and courses both domestically and internationally.

The company actively collaborates with around 10,000 clients (including retail customers) from various industries and areas of activity, characterized by different sizes and scales of purchases. Notably, no single contractor dominates the sales structure of the company.

The highly specialized nature of the company's activities necessitated the adoption of an appropriate organizational structure, which has a dual character. On one hand, it is based on a traditional functional approach, with the president overseeing the entirety and department heads managing individual units. On the other hand, it features a flat structure, where each regional manager supervises several operational employees. This direct coordination of operational work by experienced and skilled managers is seen as a significant advantage.

In addition to traditional organizational units such as accounting, human resources, legal, IT, and marketing, the company features two dominant areas. The first deals with material and technical supply, organizing deliveries of both standard, widely known parts and highly specialized, rare items typically produced in small or single batches. The second group, dominant in nature, consists of sales employees, primarily sales engineers with excellent industry knowledge, experience, and competencies gained through training and courses organized by the company and foreign partners. Their work involves direct client contact, often at the client's site, and documenting devices for repair or overhaul.

The specificity of the company's operations, requiring high mobility, skills, and industry knowledge, has led to the implementation of many new solutions, methods, and tools based on automation, digitization, and new technologies. The need for office work automation, according to the CEO, stems from the necessity to streamline and simplify various processes and procedures, including:

- human resource management, work time, calendar, and scheduling,
- document circulation, analysis, and processing, including report generation,
- communication both within the company and with contractors,
- financial matters, including salaries, liquidity management, trade credit, etc.,

- monitoring, reporting, and overseeing customer service,
- organization of supply, control, storage, and warehousing of products.

Automation in these areas significantly enhances the operational efficiency of the company by reducing the time required for routine tasks and minimizing the risk of errors. Implementing modern technological solutions also allows better resource utilization and a focus on strategic activities, contributing to the overall development of the enterprise.

4. Areas of process automation in the organization

4.1. Human Resource Management

The first area fully automated in the analyzed enterprise was the human resource management process. In the examined entity, this process is based on an external application for HR called e-employee, which was implemented in the year 2015. The application is used in direct contact with employees, both those working at the headquarters and in various branches. The program simplifies all HR, personnel, and administrative procedures. Each employee, depending on their position and role, is granted specific permissions, allowing them to access selected options, information, and data. Among the many modules available in the application, the company uses the options for managing leave, planning, and controlling work time, and handling business trips. According to the interviewee, the application is particularly useful in the process of planning leave and managing absences, especially in the context of ensuring continuity of work at the headquarters and the branches. The clarity and readability of the program practically eliminate the possibility of approving leave for all employees at the same time. The work time control module is equally useful. The nature of the business, primarily the need to ensure a high level of customer service, requires the company to be open from early morning until late evening. The main area of the company's activity is the maintenance market, including repairs, maintenance, and inspections, characterized by a high degree of failure, malfunction, and damage. Thus, the availability of spare parts, which the company provides directly from its warehouse, and the delivery time, are crucial. These factors result in employees starting and ending work at different times, working on Saturdays, and, in some cases, even on Sundays and holidays. The requirement to log in to the system upon arrival at work and log out at the end of the workday serves as an essential tool for controlling work time, eliminating the need for employer involvement in the supervision process. The module concerning business trips is used to a lesser extent, mainly indicating the date and destination of the planned trip and, in some cases, the need to reserve a company car. This limitation primarily results from the dynamic nature of the indicated area, as many business trips are sudden and related to unforeseen situations at the client’s site.

The company does not use modules for training, employee evaluation, or recruitment. Activities related to these areas are conducted traditionally or using other solutions. For example, recruitment is currently carried out through the external platform "pracuj.pl", which has significantly simplified the procedure, saving time, employee involvement, and office costs. It should be noted that in the past, the company had its relatively extensive recruitment system based on many criteria and requirements. However, this process was inefficient, often hiring individuals who did not possess the declared competencies or quickly changing employers. Analyzing the recruitment issue, the interviewee emphasized that currently, new employees are not subject to high requirements, especially compared to previous experiences. The main problem the company faces is the lack of willing candidates, and in the case of hiring an employee, their low engagement, minimal initiative, high expectations, and generally negative attitude towards performing job duties. The interviewee emphasized that each new employee undergoes an individual instruction and training system, tailored to their skills, experience, competencies, position, etc. This process cannot be automated as it requires consideration of the candidate's personal traits, including their engagement, ability to assimilate new knowledge, creativity, entrepreneurship, initiative, or willingness to experiment. Therefore, the recruitment and training process relies on both automation and a traditional approach, utilizing a personal touch. Employee evaluation in the studied company is also not automated; it is individual, complex, comprehensive, and conducted by the direct supervisor and management. This process mainly concerns employees involved in supply, customer service, and sales. Each of them (or branch) has a set sales target, usually quarterly, less frequently monthly, which is analyzed in terms of its achievement, including the value and obtained margin. Additionally, the increase in sales value (and margin) over successive periods is considered. These elements form the basis for calculating additional gratifications.

In summary, it should be emphasized that a significant benefit of implementing the e-employee application was the reduction in number of HR employees from three to two. However, it should be noted that these employees also perform other tasks.

4.2. Procurement

Another external application utilized in office work at the discussed enterprise is the EDI (Electronic Data Interchange) system, which is currently in the implementation phase. It is primarily used for communication and relationship development with suppliers, who were also the initiators of the application's implementation. Currently, it is used with four strategic partners, including SMC, NTN, Timken, and Optibelt (global manufacturers of spare parts and original equipment). This application serves as a specific form of communication and information exchange between business partners, replacing traditional email. The system facilitates the electronic exchange of standard business documents such as inquiries, offers, estimates, orders, confirmations, shipping lists, invoices, etc., significantly enhancing the speed and accuracy of data processing.

From the perspective of the company's operational activities, this is extremely important due to the need for quick responses to inquiries and demands from customers in case of failures or sudden needs for specific parts, components, semifinished products, and details. In the past, the response time to a standard inquiry was about 24 hours; currently, thanks to the implementation of these systems, the information transfer is almost instantaneous.

An additional benefit of implementing the EDI application is the ability to directly, in real-time, view partners' inventory levels, prices, production plans, and other information related to orders and deliveries. The company can connect to suppliers' systems, providing easy access to many pieces of information and data that were previously obtained traditionally (via email inquiries or fax). The company plans to fully implement the EDI system with the mentioned partners by the end of October, 2024 and, depending on possibilities and interest, expand it to the relationships with other contractors. To this end, a special team has been established to adapt the company's programs and procedures to the partners' software, enabling full compatibility between the companies.

It should be noted that in the analyzed enterprise, the operational activities, including inventory records, receipts, issues, reservations, sales, etc., are conducted using proprietary software, which is continuously adapted to the company's needs by specialized IT department employees.

4.3. Customer Service

In addition to utilizing external applications, the company develops and implements its own systems to support office work. A typical example is the customer relationship management software, developed by the IT department (Figure 1). The application is open-source, allowing for updates and modifications based on changes in the environment. During the interview, it was emphasized that external applications do not possess these features, and their adaptation to current needs generates relatively high costs. It was also noted that with external products, it is not always possible to modify the application according to the company's expectations.

The application used in operational activities consists of several modules that provide a comprehensive view of the customer. The first module includes a detailed description of the client, containing information such as the company's name, legal form, business profile, production program, type of production equipment, etc. This section also includes information about contact persons and descriptions of events, curiosities, and other information that can be used in the business relationships (e.g., information about customer needs that the company cannot currently meet).

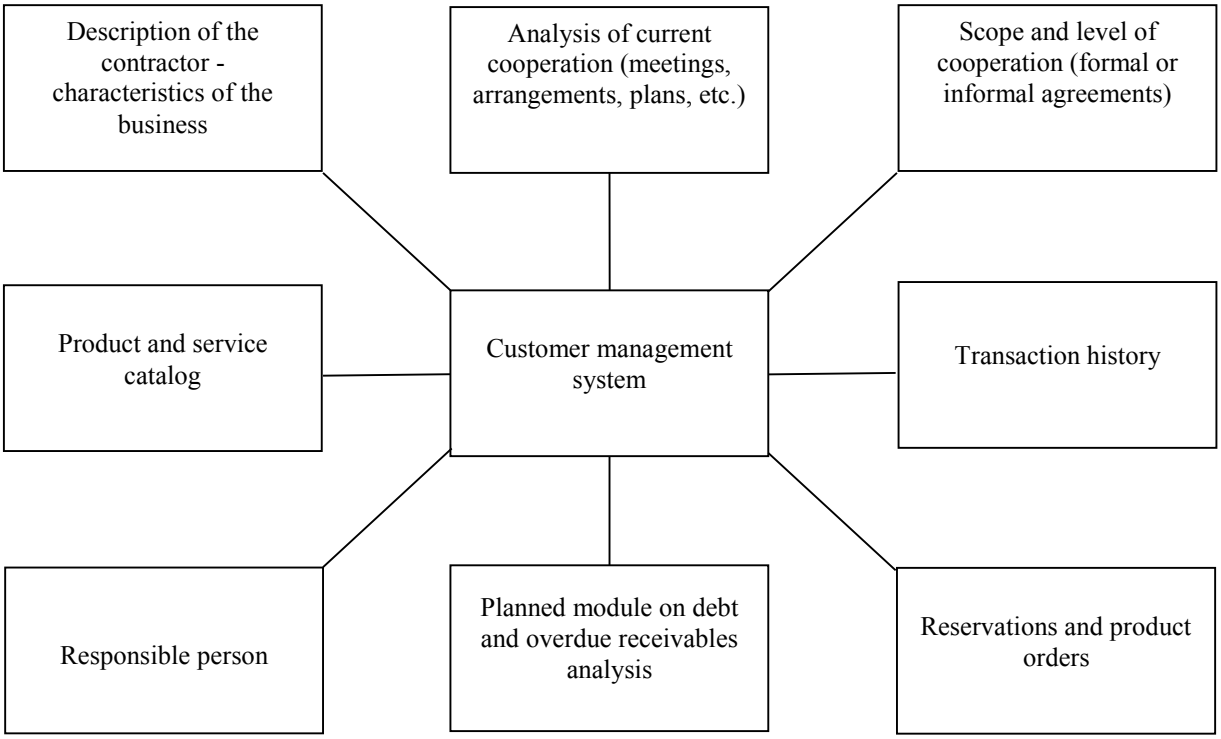

Figure 1. Customer Management System Modules.

Source: Own elaboration.

The second module contains information about meetings, both past and planned ones, mutual agreements, plans, needs, anticipated changes in processes and production equipment, negotiation results, and other aspects useful in the company's current operations. A significant element of this module is the ability to block or limit sales, for example, when a client significantly delays payment for delivered products or services. The next module contains information about the most frequently used assortment along with its detailed characteristics (type, kind, purpose, estimated demand, required quality, manufacturer, possibility of using substitutes, etc.). This section is very helpful in the direct customer service process, even if the person responsible for contact with the customer changes. From the company's perspective, the most important part of the application is the transaction history with individual partners. It includes information about the type of purchased assortment, sales volume, price, financing period with trade credit, preferred delivery type, etc. It should be emphasized that the transaction history is primarily used to analyze inventory liquidity, which is done manually by trained procurement department employees. This department in the analyzed entity is very extensive due to the nature of the business, which involves the need to maintain operations or production in cooperating enterprises. A lack of specific assortment or a delivery delay can result in the termination of the agreement and the client switching to the competitors. Therefore, the company strives to maintain a high level of part availability, which for standard products ranges from 90-95%. Another module contains information about successive orders and deliveries that will be made in the future. These deliveries are based on annual orders delivered to clients according to an agreed schedule. Each subsequent deadline for meeting the client's

demand is signalled well in advance, practically eliminating delivery delays. An essential module of the customer relationship management system is also the option to reserve parts for future pickup. This option is particularly used in situations of completing a comprehensive order for a client planning, for example, production increase, changes, scheduled maintenance, modernization, or repairs.

5. Results

5.1. Motives for automating office processes

One of the most critical issues discussed during the interview was the overall perception of the office work automation. According to the CEO, automation, including office work in a modern enterprise, is an objective necessity that impacts the competitive position, revenue and profit levels, costs, employee attitudes toward work, internal and external relationships, inventory optimization, production, distribution, and many other aspects. It fundamentally contributes to simplifying the work of individual employees, particularly in terms of routine and conventional tasks. It also facilitates the development of relationships with contractors, simplifying both the company's procurement process and the planning of sales and deliveries to customers. The interviewee emphasized that *the solutions implemented in the company are continuous and permanent over time, requiring updates, modernization, and modifications*.

He particularly highlighted the changes occurring in the business environment, notably the dynamic technological progress and the necessity to adapt to new requirements and conditions related to accounting, human resource management, customer service, and relationships with contractors. Specific demands from some partners, who condition cooperation on meeting particular criteria, including IT system compatibility, are also significant. The interviewee noted that the company is fundamentally familiar with, analyzes, and implements automation in its operational activities as much as possible and needed.

In his view, *a major drawback of implementing new solutions is the high cost of automation on one hand, and the limitations associated with the complex and multifaceted nature of the company's operations, which require a tailored approach on the other*. Furthermore, he mentioned, *implementing automation without a detailed calculation of benefits and costs can have the opposite effect, and instead of expected profits, the company might incur tangible losses*. Particular attention should be paid to actions, behaviours, procedures, and processes that constitute core competencies for the entity, i.e., assets indicating competitive advantage. Trying to frame these into specific structures will streamline the process but will also enable competitors to easily replicate, copy, or utilize them.

For this reason, not all areas of activity are equally subject to process automation. However, it should be emphasized that the company both seeks new solutions in the market and develops, designs, and implements its own methods of improvement. It is also noteworthy that most of the implemented office work improvements stem from grassroots initiatives by employees who, based on their observations, insights, and analyses, submit various remarks and needs.

5.2. Perceived benefits and costs of office process automation

There are numerous benefits and advantages associated with the implemented application. During the interview, the CEO highlighted *the ability to respond quickly to customer enquiries, reduce costs, eliminate errors, improve operational work, increase productivity, as well as the ability to better manage business processes and reporting*. An added value is also *the reduced involvement of employees in the discussed process, allowing them to be reassigned to other tasks, as well as significant improvements in information flow and communication*. The interviewee noted that in the past, there were instances where notifications, inquiries, or offers did not reach the recipient, were sent to unauthorized employees, contained errors, were delayed, or even went unanswered.

A significant drawback of external applications used for office work automation is the high cost of acquisition, as well as the limited usefulness of basic versions, mainly due to the specificity of the company's operational activities. The prices of applications range from several thousand to tens of thousands of PLN, and their valuation is usually individual. Additionally, each application requires customization to the company's profile, software, industry specifics, types of customers, suppliers, and other aspects, generating further costs. Furthermore, any change, modification, or need to improve the application requires engaging external service providers, leading to additional cost increases, time consumption, operational difficulties, and not always yielding the expected results.

For example, in the analyzed entity, it is practically impossible to fully automate the sales process. In the company this system is multi-criteria based, relying on various price levels determined by the type of customer (retail, wholesale, industrial, service, OEM – Original Equipment Manufacturers, MRO – Maintenance Repair and Overhaul), turnover volume, formal or informal agreements, barter, negotiations, consignment agreements, successive deliveries, etc. Additionally, the company offers products from different manufacturers and various substitutes with different quality, utility, value, and usability, contributing to further difficulties in attempting to automate the process. Therefore, the sales process must be conducted with significant employee involvement, as they possess the necessary knowledge, understand the buyer and their needs, and can advise and select appropriate products that meet the customer's expectations.

5.3. Barriers to implementing external applications for office work automation

Despite the numerous benefits arising from the implementation of the application, it is only used in some business relationships because a significant portion of contractors is not interested in the process of electronic document exchange. The primary concern is the potential leakage of sensitive data, such as purchase prices, production costs, sales prices, type of contractor, scope of cooperation, technical documentation, cost estimates, etc. Consequently, the company prefers traditional communication methods in many business relationships, primarily using email and, less frequently, direct telephone conversations. The primary advantages of these methods include speed, ease of use, clarity, readability, cost savings, and easy access to information and files. Email allows for quick and mass communication with company employees and branches, which is crucial when it is necessary to send important information, such as issues related to the financial liquidity of contractors who might attempt to make purchases knowing they cannot settle the payment within the agreed period. Furthermore, a particularly significant advantage of phone and email communication, from the perspective of managing the company's distribution network, is the ability to easily and securely store data, even over long periods, as well as classify and categorize it. According to the CEO, the EDI application does not have these functions.

During the interview, it was emphasized that the customer relationship management application lacks a module that presents and analyzes the contractor's debt levels and overdue receivables. These elements are included in a different application related to accounting, requiring additional employee involvement in directly servicing a specific customer. Currently, efforts are underway to add a module that includes the contractor's current financial and payment situation, with a particular focus on transaction history. However, it should be noted that attempts to create applications that monitor debt and integrate them with the company's operational activities have not yielded the expected results, leading to the establishment of a dedicated unit solely responsible for monitoring and collecting receivables. This issue is extremely significant from the company's perspective because the analyzed enterprise operates in the industrial market, characterized by a very high transaction volume. The failure of even one contractor to settle their dues can cause severe financial disruptions, potentially leading to a temporary loss of financial liquidity.

It was noted that the company employs 138 people and has a sales network comprising the headquarters and 17 branches. Such an extensive structure requires an appropriate communication system, which in the examined entity is based on the 3CX virtual telephone exchange. This system was implemented in 2016-2017 and, according to the interviewee, is a fully useful tool that improves relationships with both employees and contractors. The practical use of the exchange allows to contact with multiple employees or contractors simultaneously, conducting videoconferences, chats, screen sharing, whiteboards, documents, and even running panels, surveys, and other activities. The ability to record conversations and

analyze them later is also useful, enabling the review of details, nuances of conversations, or comments that might be helpful in subsequent analyses. The interviewee noted that the application is fully flexible, and calls or conferences can be conducted from various locations, with the only requirement being internet access. From the company's perspective, a highly useful feature is the ability to anonymously join the negotiation process between a client and a company employee, during which advantageous solutions can be suggested to the employee. Another function utilized by the company is the automatic connection of incoming calls to the employee who is not currently assisting a customer. This approach greatly facilitates and simplifies work (traditionally performed by a secretary) and significantly impacts the speed and mobility of customer service, given that customers are inherently impatient.

As mentioned, not all areas of the company's operations are subject to automation. One such area is the analysis of the liquidity of the assortment offered by the company. During the interview, it was emphasized that the breadth and depth of the product range is a unique asset of the enterprise, a key competence that has been built over several decades. Currently, there are over 35,000 items in the sales catalogue, with their volume continually increasing. The company offers its customers products from various domestic and foreign manufacturers, with differing qualities, applications, purposes, and purchase prices. These products are sold to about 10,000 buyers, none of whom are dominant. The daily sales volume and value necessitate precise daily analyses regarding the types of products sold, their manufacturers, purchase and sale prices, availability from suppliers or competitors, delivery times, production cycles, expected demand (monthly, quarterly, annually), product life cycles, and similar parameters.

According to the CEO, due to the dynamically changing demand, characterized by discontinuity and inconsistency, automation cannot be utilized in the analysis of inventory liquidity. This is particularly true for items with specific, unique, and relatively rare or dynamic applications, used by specific groups of enterprises, and often at irregular intervals. These items also have relatively high purchase prices, making it impossible to create above-standard inventory stocks. The availability of these items from the manufacturer, determined by production schedules, policies, and irregular production cycles (related to batch size), also prevents automation. Attempts to automate the process could thus result in significant losses, as it is challenging for computer programs to simultaneously account for several criteria.

This issue does not affect so-called successive orders or popular products with broad and common applications, whose deliveries are made within strictly defined time frames. Ensuring a high level of availability of the offered products therefore requires an individual approach to procurement and warehousing organization. This process involves the liquidity analysis of individual items and is performed manually by designated employees. This analysis demands above-average concentration, focus, and the ability to combine various events, and it also takes a considerable amount of time. Proper execution of this process ensures a comprehensive product range, making it one of the most critical areas of the company's operations, according to the CEO. The interviewee emphasized that the skills of the employees conducting this

analysis, their experience, and their approach to work are key competencies of the company and fundamentally impact its competitive position, image, and reputation.

6. Conclusions

In the face of dynamically changing business conditions, work automation is becoming not just a benefit but a necessity, especially for enterprises aiming to maintain competitiveness. The conducted case study analysis revealed the crucial role that automation plays in various aspects of a company's operations, from simplifying and streamlining office work to optimizing operational processes and strengthening relationships with contractors. The implementation of systems like e-employee and EDI in the discussed unit has significantly improved efficiency, reduced costs, and increased transparency and speed of information flow. It is emphasized that in practice, automation can be applied in all areas of a company's operations, particularly those involving repetition, rhythm, or cyclicity. It is especially useful in accounting and financial processes, internal and external communication, sales and customer base management, recruitment, work supervision, report creation, etc.

Analyzing the dynamic changes in the business environment, it can be noted that the role of office work automation will rapidly gain importance, especially in the context of labour market changes related to the lack of generational replacement. Demographic issues mean that many companies already face significant challenges in finding competent and engaged employees. Over the next few years, this negative trend will intensify, with more people leaving the workforce and fewer willing to take on new challenges, particularly those associated with monotony and repetition, which are ideal for automation.

It should be also emphasized that implementing new technologies comes with many challenges, including the need for continuous adaptation of systems to a changing environment, regulations, and contractor requirements. The high costs associated with implementation and modification of solutions are also a significant drawback. In the context of incurred costs, it is worth noting the grassroots initiatives of employees, which are often sources of innovation and improvements, with the caveat that key competencies and unique procedures of the company must be protected from easy replication and should not be subjected to automation processes. According to the interviewees, the process of office work automation requires a balanced approach that considers the specificity of the given activity and the individual needs and preferences of the enterprise.

The case study showed that there are specific, unique, and unrepeatable solutions that cannot be systematized. In the discussed entity, one such area is employee evaluation, where due to the dynamic, discontinuous, and variable nature of operational activities, measurable

criteria cannot be applied. A personalized analysis, conducted by the competent individuals with extensive experience and practice, is required. Automation does not apply to areas that are exceptional and fundamentally constitute the core competence of the enterprise. In the analyzed company, an example of such an asset is the ability to shape the assortment-quality-price offer, which ensures the full availability of spare parts and is directed at both enterprises focusing on branded elements with certificates of origin and those for whom quality is of secondary importance.

In light of the above considerations, conducting the process of office work automation requires a phased approach (Figure 2).

In summary, it can be emphasized that office work automation in the discussed enterprise is both a strategy for improving efficiency and reducing costs and a way to increase flexibility and adaptability in a rapidly changing business environment. In the process of ongoing changes, it is essential to remember the need to balance technology with the personalization of work, characterized by an individualized approach to customers, employees, and other stakeholders, which will be crucial today and in the future for building, maintaining, and developing lasting business relationships and maintaining an appropriate market position.

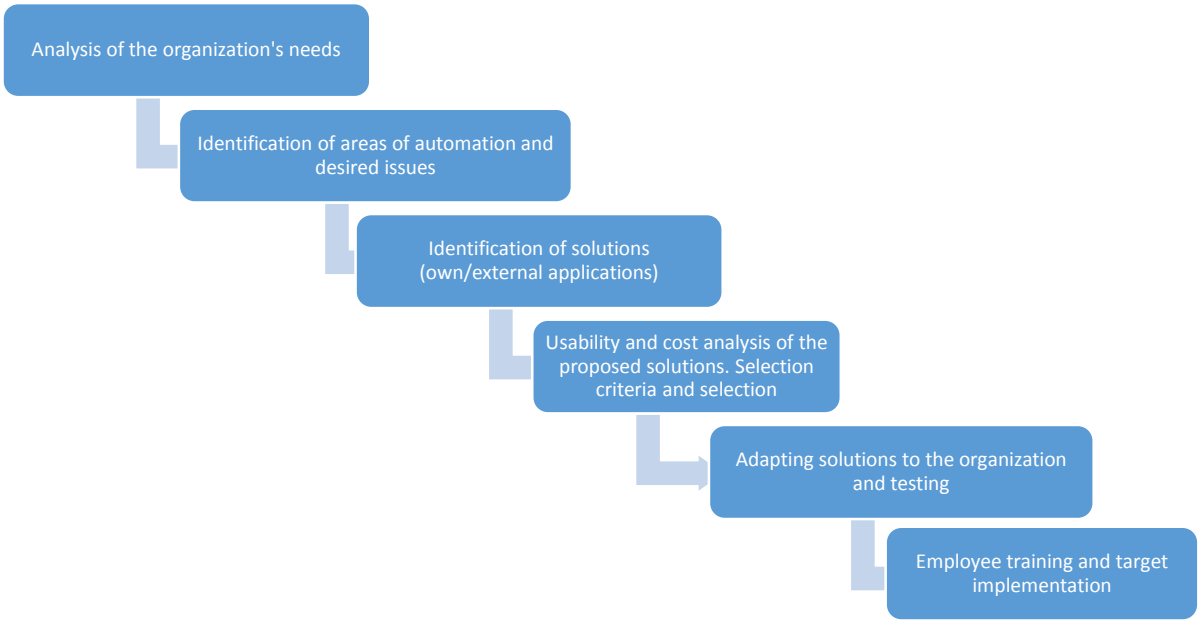

Figure 2. Phased Approach to Office Work Automation in the Analyzed Enterprise.
Source: Own elaboration.

The conducted case study has also allowed for the formulation of several recommendations to assist entrepreneurs in implementing automation within their own companies. First, the introduction of automation should be carried out gradually, starting with the most repetitive and time-consuming tasks. Simultaneously, the automation process should involve employees at various levels, who can help identify areas requiring automation and minimize resistance to change.

It is also crucial to invest in training and technical support, which should help to develop competencies and reduce resistance to changes. Before implementing automation, companies should conduct a detailed cost-benefit analysis. Understanding potential savings and the investments required to implement new systems allows for more informed business decisions. Entrepreneurs should also remember that not all areas of operations should be subject to automation. A company should protect its core competencies and unique procedures, which constitute its competitive advantage, from full automation to avoid the risk of them being copied by competitors.

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