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THE USE OF ARTIFICIAL INTELLIGENCE IN THE RELOCATION OF BUSINESS FUNCTIONS IN LARGE COMPANIES

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Purpose: The purpose of this article is to try to answer the question: can artificial intelligence technology support the relocation of business functions in large companies? The answer is possible through the use of secondary sources available from scientific and research institutions and reputable research institutions. The goal thus formulated takes into account the contemporary challenges faced by business organizations in the context of implementing artificial intelligence technology. It was achieved through theoretical considerations. The research method used was that of literature analysis and criticism.
Design/methodology/approach: The research method used was the method of literature analysis and criticism. The theoretical considerations carried out, on the basis of domestic and foreign literature, in the field of artificial intelligence technology allowed to achieve the stated purpose of the article.
Findings: Artificial intelligence technology can support the selection of optimal business function locations in the structure of large companies helping to reduce the risk of mislocations as a result of analyzing large amounts of data, including information already covering successful and unsuccessful function relocations.
Research limitations/implications: The study was limited to reviewing the literature on the subject and analyzing available scientific sources and research reports, which allows us to gather up-to-date and reliable information on the issue under study. The presented research results should serve as a starting point for field research among large companies.
Practical implications: The content in the article can be used by company managers to use artificial intelligence technology in deciding where to locate business functions. Relocating a business function to another company involves certain costs, risks and social consequences. Therefore, the final relocation of functions should be the result of a well-designed decision. Artificial intelligence can help in this regard.
Originality/value: Indicating that in addition to the methods used by managers in the process of relocating business functions, artificial intelligence can be used in this area. It can predict (forecast) many solutions that will not be possible by highly skilled managers.
Keywords: Artificial intelligence, business functions, relocation of functions.
Category of the paper: Research paper.

1. Introduction

Modern organizations reach for solutions that reduce the costs of running a business, increase the efficiency of implemented processes and allow employees to focus on important (complex) tasks from the point of view of the organization's goals. Among the available solutions that provide tangible benefits for enterprises, artificial intelligence technology is increasingly used in various functional areas of the organization. It has become a subject of interest in business practice and the scientific community, and its impact on the functioning of the organization is widely described in many scientific publications, domestic and foreign. (Wagner, Lukyanenko, 2021; Paré, 2021; Casero-Ripolles, De-Lima-Santos, Ceron, 2022; Johnson, Bauer, Niederman, 2021; Dauvergne, 2020).

Artificial intelligence is a technology that S.J. Russell and P. Norvig define as a program that collects data about the environment and takes action in it to achieve its goals (Russell, Norvig, 2009). Artificial intelligence refers to systems that exhibit intelligent behavior by analyzing their environment and taking actions – with some degree of autonomy – to achieve specific goals (European Commission, 2019, p. 2). There are two types of this technology: (1) software, which includes: virtual assistants, image analysis software, internet search engines, speech and facial recognition systems, and (2) "embodied" artificial intelligence, including robots, autonomous cars, drones, the Internet of Things (European Commission, 2020). On the one hand, artificial intelligence can be used to predict future trends, identify problems, analyze large amounts of data or edit company documents, on the other hand, it is widely used in solving various types of organizational problems, supporting decision-making processes and improving the efficiency of business processes. Currently, artificial intelligence is increasingly used in various sectors of the economy. The manufacturing industry is also one of the main industries that benefit from its capabilities (Siarry, 2022). The main benefits of its use in industrial enterprises include increased productivity (55% of responses); improved quality of manufactured products (51%); shortened production time/service provision process, reduced downtime (47.1%); and reduced costs (47.3%)[1]. According to research conducted by T.H. Davenport and N. Mittal, fully AI-fueled companies constitute less than one percent of large companies (Davenport, Mittal, 2023).

Artificial intelligence, similarly to information technology, is playing an increasingly important role in various functional areas of organizations. Its applications include a wide range of tools that are used in various departments of the organization. Its influence is also visible in current production and service processes. Large enterprises are increasingly introducing intelligent robots, such as humanoid robots or service robots, which contributes to increased efficiency and innovation of operations. These are expensive solutions that can only be afforded by large enterprises. Which, thanks to investing in artificial intelligence technologies, build

[1] Prepared on the basis of: (Central Statistical Office, accessed 12.06.2025).

their competitive advantage. The development of modern technologies, including the increasing pace of robotization and the implementation of technologies based on artificial intelligence in companies, seems to be an irreversible future (Morze, 2024, p. 244).

The aim of this article is to try to answer the question whether artificial intelligence technology can support the relocation of enterprise functions in large companies? The answer is possible thanks to the use of secondary sources available in scientific and research institutions and renowned research institutions. The goal formulated in this way takes into account the contemporary challenges faced by business organizations in the context of implementing artificial intelligence technology. It was achieved through theoretical considerations. The research method used was the method of analysis and criticism of literature.

2. Research Methodology

Research on the possibilities of supporting the relocation of enterprise functions in large companies through the use of artificial intelligence technology formed the conceptual framework for this article. Specifically, the author sought to answer the question: Can artificial intelligence technology support the relocation of enterprise functions in large companies?

1. To analyze this issue in detail, three specific objectives were established.
2. To present the importance of artificial intelligence for organizational functioning, highlighting its potential for process optimization and decision support.
3. To identify functional areas within the organization where the use of artificial intelligence is particularly important and useful.

To achieve these specific objectives, a literature review and critique method was employed, drawing on current scientific literature and reports prepared by experts from renowned organizations. The selection of materials was based on their relevance and credibility, allowing for a thorough and comprehensive analysis of the topic.

3. Artificial Intelligence in Organizations

In light of the achievements to date, it is an undeniable fact that AI is already bringing us many benefits, and there will be many more in the near future – in the economy, health care, scientific research, and in fact in almost all areas of our lives (Kleiber, 2024, p. 91). It is becoming part of our daily lives and companies are increasingly adopting it. Research from Deloitte found that larger companies are nearly 70% more likely than smaller companies to actively implement AI across their business operations. More than a third (34%) of global IT

professionals reported that their company had not implemented any AI projects. In contrast, 74% of companies are exploring or implementing AI. The main barriers to AI implementation mentioned by respondents were: limited experience or knowledge of AI (39% of responses), increasing data complexity and data silos (32%), and lack of tools or platforms for developing AI models (28%). On the other hand, building an organization based on artificial intelligence generates specific problems in its subsequent stages. Here researchers have identified specific difficulties. These include: analyzing data to build and scale trusted AI (39% of responses), implementing AI across the company (37%), organizing data to create a business-ready analytical foundation (37%), collecting data to make it simple and accessible (37%). Every third company plans to invest in the following areas: embedding AI in current AI applications and processes (34% of responses), retraining and developing the workforce (34%), ready-made AI applications (34%), and proprietary AI solutions (33%). D. Chalmers, N.G. MacKenzie, and S. Carter have interestingly concluded that new organizational roles will emerge and be required as companies adapt to the widespread adoption of AI. These include trainers who improve algorithms by adding nuance to decision-making and interpretation; explainers who bridge the technical gap between AI systems and business managers; and maintainers who manage ethics and day-to-day management (Chalmers, MacKenzie, Chalmers, 2020, p. 1036). Analyzing the results of Deloitte's research on enterprise functions, organizations plan to invest in the area of production (automating processes, 25% of responses), in the area of sales (customer service, 25% of responses), in the area of marketing (25% of responses) and in the area of logistics (supply chain, 11%). Investments in the areas of production, sales and marketing seem to be a natural direction of development for companies, because these functions have a key impact on the company's revenues. Not after some time, but immediately, they have a direct impact on the results achieved. In marketing, this technology allows for the personalization of offers and communication with customers, which increases the effectiveness of promotional activities. In production, artificial intelligence, in addition to process automation, optimizes production schedules and minimizes operating costs. In the area of customer service, chatbots and AI-based systems provide fast and effective assistance 24 hours a day, seven days a week. The authors of the Deloitte report emphasize that the biggest barrier to the development of trusted AI are AI results that cannot be explained. Polish researchers also draw attention to the credibility of AI. One of the most frequently raised flaws of AI that affect the credibility of the system is the limited ability to explain why AI systems make specific decisions (Krzysztoń, Lis, Sikora, Jaskóła, 2023, p. 16). The research presented by L. Lepratte and G. Yoguel shows that the use of AI is not limited to employees and departments that directly use AI (Lepratte, Yoguel, 2023). The consequence of its use is the penetration of AI into the functional areas of the organization and a change in traditional ways of working, which can lead to increased efficiency, process automation and the emergence of new business models. The link between information processing and decentralized organizational structure is crucial when using AI to enhance employee skills (Holm, Hain, Jurowetzki, Lorenz, 2023, p. 1149).

A decentralized structure promotes decision-making at the level of subsidiaries (at the local level), increasing the autonomy of these units, and better adaptation to local conditions, e.g. in the case of industries offering FMCG products. The impact of AI on the level of centralization of the structures of subsidiaries may be two-way. On the one hand, AI may determine an increase in the freedom of action of managers of subsidiaries, promoting the decentralization of management. On the other hand, its use may lead to the centralization of management, to centralized structures as a result of limiting the autonomy of subsidiaries, and concentrating power in the company's headquarters. Assuming that the computerization of enterprises has been conducive to the centralization of management, one can hypothetically assume that artificial intelligence, which, among other things, supports decision-making processes by generating decision variants and their consequences, will be conducive to the centralization of management.

A crucial issue is the ethics and bias of AI. According to T. Hagendorff, AI ethics are currently failing in many cases. It is often perceived as something superfluous, a redundant element or a sort of "add-on" to technical issues, a non-binding framework imposed by institutions "outside" the technical community (Hagendorff, 2020). The complex issue of ethical use of AI is particularly discussed in three areas (Sempryk, 2023, p. 77):

1. Bias in algorithms: This concerns situations where algorithms perpetuate stereotypes and prejudices.
2. Lack of transparency: There are situations in which it is impossible to determine how algorithms reached specific conclusions based on the data provided.
3. Data protection: Data used by AI is protected by law, which is an important and legitimate aspect (Sempryk, 2023, p. 77).

Artificial intelligence (AI) bias, on the other hand, is a phenomenon that occurs when algorithms and models learn and make decisions based on data that contains biases or is not fully representative (bias). This phenomenon is caused by both limitations in the quality and scope of data and the way algorithms interpret and learn from this information. As a result, AI bias can lead to unfair results. It is important for engineers to refine AI models to ensure they are as objective as possible.

4. Application of artificial intelligence in functional areas of the organization

One of the basic applications of AI is supporting decision-making processes (Agrawal et al., 2018). AI improves decision-making, automates operations and drives competitive advantage in key business functions such as human resources, customer service, supply chain management and cybersecurity (Okechukwu, Bachmann, p. 198). The application of AI in some

organizational functions is presented in Table 1. In almost all enterprise functions, and especially where large amounts of data are generated, predictive analytics is developing. Predictive analytics provides strategic insights and forecasts based on historical data (Wolniak, 2023, p. 295). It enables more accurate prediction (forecasting) of results based on available data (from inside and outside the organization). It speeds up the process of making operational, tactical and strategic decisions within individual functions of the company. It significantly shortens the time to make the final decision. As a result, it may lead to the reduction of some job positions or their complete elimination. This applies primarily to positions where repetitive, routine and systematic tasks are performed that can be automated. Ultimately, the reduction in staff as a result of the wide-scale use of artificial intelligence will reduce the number of function implementers in individual departments of the organization, reducing the size of the organizational structure.

Table 1.
Applying AI to Enterprise Functions

Functional areas	Selected areas of AI application
Purchasing	- forecasting demand for raw materials and components for production, - selection of suppliers, - optimization of the number of raw materials and components used for production, - data analysis.
Logistics	- predicting the speed of product movement in the supply chain, - warehouse optimization, - data analysis.
Marketing	- personalization of marketing offers, - predicting consumer behaviour, - creating promotional content, - analyzing marketing data.
Sales	- customer service automation, - sales forecasting, - identifying potential customers on the B2C and B2B market, - data analysis.
Production	- automation of processes and repetitive tasks, - machine optimization, - production problem prediction, - data analysis.
Human Resources	- automation of recruitment processes, - identification of training needs, - assessment of employee engagement, - data analysis.
R&D	- automation of experiments, - optimization of research processes, - support for designing new technologies, - data analysis.

Source: Own elaboration.

According to T.H. Davenport and N. Mittal, AI-powered companies achieve value through (Davenport, Mittal, 2023):

- Speed of execution. AI minimizes delays in decision-making and action, reducing time to operational and business impact.
- Cost reduction. AI intelligently automates business processes, tasks, and interactions to reduce costs, increase efficiency, and provide predictability and environmental sustainability.
- Understand complexity. AI supports understanding and decision-making by discovering patterns, connecting the dots, and predicting outcomes from increasingly complex data sets.
- Engagement transformation. AI technologies transform the way customers and employees interact with intelligent systems, enriching them with voice, video, text, and touch.
- Powering innovation. AI offers deep insights into what's at stake and how to win, helping to create new products, seize market opportunities, and implement business models.
- Increased trust. AI protects brands from the risks of fraud, waste, exploitation, and cyberattack, which positively impacts stakeholder and customer trust.

The above categories, which allow organizations using AI to increase their value, can be successfully applied to the functions of the enterprise. This means that the functions implemented in the company and the processes in which they occur gain a competitive advantage, manifested in:

- Speed decision-making across functions and processes.
- Reduce costs across functions and processes.
- Understand complexity through the ability to analyze and interpret large data sets across functions and processes.
- Transform engagement through tools that support the active participation of employees, customers, and other stakeholders across functions and processes.
- Drive innovation by supporting the analysis of internal and external data across functions and processes.
- Increase trust in market-oriented functions and processes.

5. Relocation of functions in a multi-entity organization

In the market, in addition to classic enterprises, there are and are developing organizations consisting of a superior unit and subordinate units. The superior unit plays the role of a decision-making and management center. It imposes goals, strategy, principles of operation on subordinate entities and enforces their implementation. The role of subordinate units is to

implement the decisions made (strategy) and generate value for the entire multi-entity organization. In their activities, they are usually strongly dependent on the company's headquarters. In modern organizations, and especially in business entities, the only constant element is constant change. The main active areas are: changing technology, changing marketing and promotion strategies, changing the forms of conducting personal communication, changing the methods of organization and changing management models (Kiełtyka, 2016, p. 8). Now more than ever, organisations are responding to new realities in the global economy by deepening their engagement across country contexts and responding to pressure from local stakeholders (Ciravegna, Michailova, 2022).

In every organization, we can distinguish between basic and auxiliary functions. Basic functions include manufacturing products, sales, and providing services, constituting the main source of the company's revenue. Supporting functions serve the basic functions and are a cost driver. Changes occurring in both the internal and external environment of the organization may force the reorganization of the places where these functions are performed. Managers have at their disposal three methods supporting the process of relocating functions and a method based on artificial intelligence, which help to adapt the organization's structure to new conditions (Figure 1). The method based on experience and intuition indicates that the experience of decision-makers (managers) and their internal feelings have a significant impact on the choice of the location of the function. Managers who use intuition are distinguished not only by a different way of perceiving organizational situations, but also by a unique approach to decision-making problems, the ability to identify and use opportunities that appear on the market (Malewska, 2014, p. 20). Intuition is useful in the face of a crisis or emergency when new trends emerge and data is insufficient, inappropriate to the problem at hand, or missing (Wiliams, 2012, p. 59).

The benchmarking method enables the implementation of solutions for changing the location of functions that have brought the desired results for other multi-entity organizations, competitive companies, industry leaders, and entities from other industries. As a result, solving the problem comes down to adapting existing solutions to current environmental conditions. Access to data (to the latest solutions) may be a serious barrier here. The innovativeness of such a solution is low. In addition, in the scope of specific functions, there are established and dominant solutions that do not have to be the best in the industry or sector. However, imitating proven locations reduces the costs and time of designing and implementing your own solution. In addition, it is a guarantee, at least temporary, of effective and proper selection of the place for implementing the function. The method based on factor analysis consists of determining factors, examining their strength and direction of influence. Each of the influencing factors should be recognized and analyzed in detail. If, for example, the analyzed factor is the protection of specialized knowledge, then company headquarters may not be interested in locating parts of the R&D or marketing functions at the level of subsidiaries.

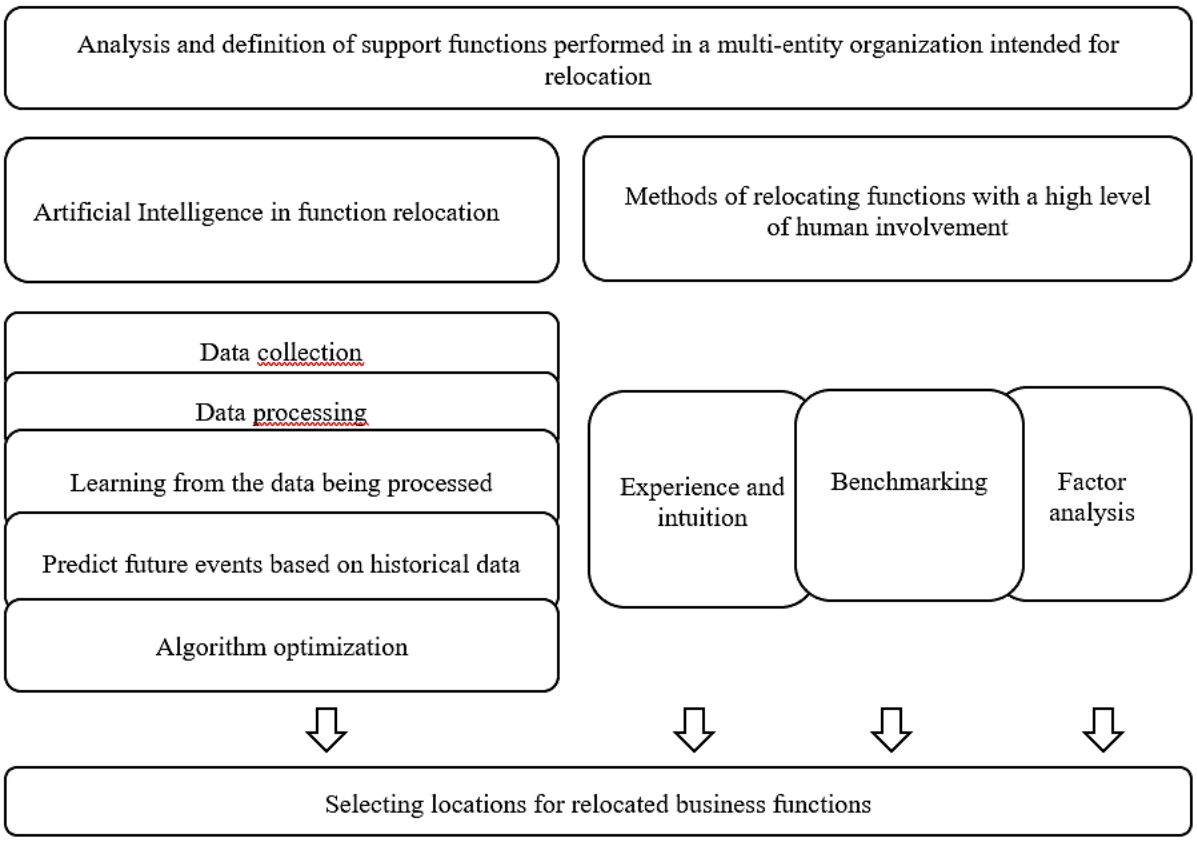

Figure 1. Artificial intelligence and human-based methods in business function relocation.
Source: Own elaboration.

The use of artificial intelligence technology in function relocation provides decision makers with extensive analytical capabilities, enabling more accurate consideration of available data, planning, optimizing function relocation and minimizing risk. AI allows the rapid analysis of large data sets, identifying the most favorable locations, taking into account the limitations of an erroneous decision, which translates into a more efficient and flexible identification of the right place for the implementation of function tasks. The steps of the procedure are as follows:

- Collecting quantitative and qualitative data from inside and outside the organization.
- Data processing. AI systems analyze data sets, interpret them, and use them in further processes.
- Learning from processed data, which includes analyzing available data, drawing conclusions, recognizing patterns, and improving previous behavior.
- Predicting future events based on historical data allows for making better decisions based on previous trends and patterns.
- Optimizing algorithms aims to achieve the best possible results with the minimum use of resources, such as computing time or memory.

It is important to have high-quality data and create models that will provide reliable results (new places for implementing functions).

6. Discussion and conclusions

The purpose of relocating functions is to use human, material, financial and information resources more effectively than before, and to optimize functional areas, organizational processes, and organizational structure. But also to adapt the company structure to changing environmental conditions. The decision to change the location of a function should be preceded by a comprehensive analysis of places that guarantee the best conditions conducive to the implementation of the function. This decision takes on a much greater significance when we are dealing with an organization with a multi-entity structure, i.e. with a complex matter in which internal entities can aspire to the implementation of the relocated functions. This decision is a reversible decision, but depending on the nature of the function, its rank, and importance for the entire group, the consequences of an incorrectly made decision can be very "painful" for the organization. Therefore, a thorough analysis of all circumstances and conditions that can facilitate the indication of an appropriate place for their location should be considered justified in the decision-making processes of changes in the location of functions. The traditional methods of reaching location indications presented in the study are to support the process of relocating functions. They can be used independently of each other but also together. Designing modern solutions for localizing functions is based on existing knowledge. Because it is still insufficient, it is likely that in business practice, functions are often relocated as a result of their erroneous relocations, which do not result in the desired benefits for the entire organization. The selection of the appropriate method should be conscious and responsible and, as a result, should support the process of selecting the optimal place for the implementation of the function or its components (subfunctions).

The use of artificial intelligence technology in the function relocation process opens up new analytical possibilities, enabling the processing and interpretation of large and complex data sets that would be difficult or impossible for a human (team) to analyze. Analyzing large amounts of historical and operational data, predicting potential relocation problems, and identifying the competencies of potential function implementers are examples of the benefits of supporting the function relocation process with artificial intelligence technology. Thanks to artificial intelligence technology, it is possible to more accurately assess the conditions, costs, risks or development potential of an organization (its various functional areas). As a result, decisions made about the appropriate relocation of functions are more accurate and have less risk. However, you cannot trust artificial intelligence completely. Therefore, in addition to solutions proposed by artificial intelligence, important aspects of emotional and social intelligence should always be taken into account in all decision-making processes (Bieniok, 2024, p. 23).

However, it's important to remember that AI technology can generate errors, for example, when input data is incomplete or outdated, which can lead to incorrect conclusions, including incorrect location predictions for enterprise functions.

The research was limited to a review of the relevant literature and expert reports. The next step should be to conduct research in large enterprises to verify the theoretical assumptions presented in this article. The research results obtained in this way could indicate the level of AI support for relocating enterprise functions.

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