
Multi-Criteria Aspects of AI Readiness in the Perspective of Human-Centered Design, Resilience and Sustainable Development Goals

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Abstract:

Purpose: Preparation of a comprehensive questionnaire to assess an enterprise's readiness for AI implementation in terms of strategy, access to new data, use of new technologies, changes in human resource utilization, and management aspects, with consideration of sustainability factors.

Design/Methodology/Approach: Development of an advanced survey aimed at a comprehensive quantitative analysis of results, indicating the maturity index for AI technology adoption, with consideration of human and environmental factors.

Findings: The pilot study was conducted at an IT company in Poland specializing in software development. The research focuses on analyzing activities related to the implementation of artificial intelligence within the company, considering all relevant aspects such as strategies, implementation processes, the effectiveness of applied technologies, and the competencies of the AI technology team.

Practical Implications: The development and implementation of a detailed, fully professional assessment form for AI utilization in organizations will contribute to increasing companies' awareness of their position in the field of artificial intelligence and enable better decision-making regarding the further development and implementation of this technology.

Originality/Value: Practical solutions to the research problem highlight the need for developing more effective strategies that ensure both efficiency and safety in the implementation of artificial intelligence in organizations, against the backdrop of challenges related to sustainable development. Meanwhile, the available literature addresses the problem only in a fragmented manner.

Keywords: Artificial intelligence, Industry 5.0, human-centered design, resilience, sustainable development.

JEL Codes: O32, D83, M15, Q55.

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1. Introduction

At the end of 2023, the adoption rate of artificial intelligence technologies in the global economy remained relatively low, estimated at approximately 40% of business entities, although around 84% were indirectly using or testing AI technology (McKinsey, 2023). By the end of 2024, estimates are significantly higher, with 72% of organizations implementing at least one AI functionality, 55% adopting at least two, and 27% adopting at least three functionalities (McKinsey, 2024).

During the implementation process, businesses primarily focus on technological aspects and the business benefits of this next stage of digital transformation. At the same time, for many years, researchers have been highlighting much broader implications associated with the presence of AI in the economy and social life.

In the implementation process, entrepreneurs primarily focus on technological aspects and the business benefits derived from advancing this next stage of digital transformation. At the same time, for many years, researchers have been pointing to much broader implications associated with the presence of AI in the economy and social life.

This study presents a practical scenario for assessing a company's readiness to implement AI technology, taking into account the social, organizational, and environmental aspects of planned transformations, as outlined, among others, in the assumptions of the so-called 5th Industrial Revolution. Regardless of the adopted terminology, considering the effects of changes brought by the introduction of AI technology across the entire spectrum of its impact appears highly valuable.

The aim of this study is to prepare a detailed questionnaire for assessing an enterprise's readiness to implement AI in terms of strategy, access to new data, use of new technologies, changes in human resource utilization, and management aspects, with consideration of sustainability factors.

The assessment is performed quantitatively and defines a comprehensive maturity index for AI technology adoption, taking into account human and environmental factors. The study demonstrates the application of the proposed assessment in an IT technology company; however, it should be emphasized that the method can be utilized by enterprises from various sectors of economic activity. The developed tool can support decision-making processes regarding the adoption of AI technology and its integration with existing solutions.

In consideration of the level of adoption of artificial intelligence technology in an enterprise and its impact on business operations, a crucial aspect is the definition and application of AI maturity criteria. This process enables a thorough evaluation of the extent to which AI has been implemented in various areas of a company's activities.

Developing such criteria allows a company to precisely determine its position in the AI domain, identify areas requiring development, and formulate strategies for further progress. AI maturity criteria are also highly useful for understanding how this technology contributes to achieving business objectives and for identifying challenges and opportunities associated with its implementation (Martínez-Plumed *et al.*, 2021).

At the outset, it is important to define what is meant by the term "AI maturity." AI maturity in an enterprise refers to the company's readiness to effectively utilize artificial intelligence technology. The scope of this concept is broad and includes elements such as the organization's understanding of AI, current applications of the technology, availability of suitable infrastructure, data quality, and the presence of necessary specialists and experts. It also encompasses having a well-thought-out AI strategy and competent leaders in this area.

It is worth emphasizing that AI maturity is not a universal standard that can be uniformly applied across all organizations. The level of AI maturity in a company may vary depending on the industry, size of the enterprise, available resources, and specific goals. Some companies may be pioneers in AI implementation, while others might just be starting their journey with this technology (Wesoftyou.com, 2024).

AI maturity in an organization can be defined as the degree of advancement in adopting and integrating artificial intelligence technologies into its structures and processes. This maturity determines the extent to which AI technologies and practices are embedded in the company's operations, decision-making processes, and overall strategy. A mature AI organization is one that effectively leverages artificial intelligence to generate business value, foster innovation, and gain a competitive advantage.

Conversely, an organization at the initial stage of AI maturity may just be beginning to explore the possibilities of artificial intelligence, lacking extensive integration of this technology or clearly defined strategic business goals. AI maturity in a company is determined by several factors, the most significant of which are (Wesoftyou.com, 2024):

- *Understanding AI:* AI maturity in an organization begins with an understanding of AI concepts, its capabilities, and potential applications. This includes knowledge of machine learning, natural language processing, computer vision systems, and other aspects of AI.
- *Current use of AI:* The extent to which an organization currently applies AI technologies also contributes to its AI maturity. This can range from basic AI applications, such as chatbots or recommendation systems, to more advanced implementations, like predictive analytics or autonomous systems.
- *Infrastructure and data:* AI heavily relies on data, making the availability of robust data and infrastructure critical for increasing AI maturity within an

organization. This includes data collection, storage, processing, and management. Organizations with well-developed infrastructure are better positioned to leverage AI effectively.

- *Specialists:* The availability of AI specialists within an organization is another important factor. Skilled professionals, such as data scientists, machine learning engineers, and AI experts, are needed to develop, implement, and maintain AI solutions. Organizations investing in building a strong AI team demonstrate higher AI maturity.
- *AI strategy and leadership:* The presence of a well-defined AI strategy and strong leadership support is essential for AI maturity. This involves aligning AI initiatives with business objectives, setting clear goals, and providing the necessary resources and support to drive AI adoption and integration.

These factors define the extent to which artificial intelligence technology is developed and functionally implemented within the operations of an enterprise. Before assessing AI maturity in an organization, it is essential to identify the current utilization of artificial intelligence technology.

This involves evaluating applications and systems using AI, such as the previously discussed chatbots or predictive analytics systems. The next step is to define AI-related goals. Clearly, establishing these goals enables a focus on areas where artificial intelligence can deliver significant benefits. This approach allows for a deeper understanding of the current level of AI implementation within the organization.

There are numerous AI maturity models, each tailored to the specific business needs of organizations. While the fundamental concept of an AI maturity model remains consistent across different frameworks (focusing on the development of AI-related processes to achieve optimal business performance), individual models, such as those developed by Gartner, IBM, and Microsoft (Sajid, 2023; Microsoft, 2024) differ in their emphasis on certain aspects, level of detail, and approach to AI implementation.

AI maturity models provide valuable guidance for organizations on their AI adoption journey, enabling effective planning and implementation of artificial intelligence with the goal of optimizing operations and achieving strategic business objectives.

2. Literature Review

The adoption of AI in enterprises was already being extensively discussed in the 1980s. Over time, the perspective shifted from a purely technical-business aspect to emerging new predictions and ambiguous evaluations of the impact of this technology on elements such as the human factor, organizational resilience, and sustainable development goals.

The first systematic description of technological, organizational, and environmental frameworks was provided by the so-called TOE model (Tornatzky and Fleischer, 1990), which is widely used in AI adoption research to analyze technological readiness, organizational capabilities, and external pressures.

Extended studies of this type were conducted (Dwivedi *et al.*, 2021) to examine how AI adoption aligns with the TOE model, emphasizing data infrastructure, leadership support, and market competition as critical factors. Similarly, in studies on Rogers' Diffusion of Innovations Theory (Miller, 2015), researchers examined how AI spreads within organizations, focusing on relative advantage, compatibility, and complexity.

The strategic and operational benefits of AI implementation have also been analyzed from the perspective of competitive advantage and efficiency (Porter and Heppelmann, 2015), exploring how AI and related technologies enable the creation of smarter products and enhance operational performance, reshaping traditional business models.

The issue of decision-making based on AI has also been a subject of scientific analysis (Rai *et al.*, 2019), where the focus was on the role of AI in improving data-driven decision-making processes, particularly in complex scenarios such as supply chain optimization and financial forecasting. The implementation of AI has also been studied in the context of financial resource constraints, especially for small and medium-sized enterprises (Ransbotham *et al.*, 2020).

The socio-technical aspects of AI implementation have been analyzed (Brynjolfsson and McAfee, 2017) with a focus on the integration of artificial intelligence into corporate systems, emphasizing the balance between technical capabilities and the human factor. Another perspective has been the study of cultural inertia, referring to the lack of skills to use AI and the fear of job displacement (Fountaine *et al.*, 2019), as well as ethical issues (Binns *et al.*, 2018; Davenport and Ronanki, 2018), highlighting the need for robust AI governance frameworks to ensure transparency, fairness, and accountability.

Research has also explored the potential for collaboration between humans and AI in enhancing decision-making processes rather than pursuing full process automation (Jarrahi, 2018). Another critical issue, workforce transformation (Agrawal *et al.*, 2018), has been examined in terms of the economics of artificial intelligence, describing its impact on labor markets and the redefinition of roles within enterprises.

In the context of sustainable development, studies explore how the adoption of artificial intelligence can drive initiatives for optimizing energy use and establishing green supply chains (Kouhizadeh *et al.*, 2021). Implementing AI within the

framework of the 17 Sustainable Development Goals (United Nations, 2024) presents significant challenges. The main issues include:

- Access and the digital divide (SDG 4: Quality Education, and SDG 9: Industry, Innovation, and Infrastructure), where ensuring equal access to AI technology may pose a challenge,
- Impact on jobs (SDG 8: Decent Work and Economic Growth), where the development of AI could reduce certain positions without providing easy opportunities for reskilling,
- Ethics and social inclusion (SDG 10: Reduced Inequalities), where AI may deepen inequalities rather than mitigate them,
- Sustainability of AI supply chains (SDG 12: Responsible Consumption and Production), which may be disrupted as the increasing use of AI drives higher demand for rare earth elements,
- Energy consumption and carbon emissions (SDG 13: Climate Action), which may increase as AI development progresses,
- Transparency and ethical governance (SDG 16: Peace, Justice, and Strong Institutions), which may be undermined with the application of AI,
- Alignment with long-term goals (SDG 17: Partnerships for the Goals), where the implementation of AI technology is often viewed as delivering short-term gains while overlooking longer-term perspectives,
- Fragmentation of AI efforts (SDG 17: Partnerships for the Goals), where AI implementation often focuses on isolated issues rather than integrated solutions.

Recent comprehensive analyses of the issue in the context of sustainable development include studies such as those by Agarwal *et al.* (2024) and Martínez-Plumed *et al.* (2021). The topic of AI is also considered from the perspective of the so-called Industry 5.0 concept, where the pillars of the latest industrial revolution are complemented by human-centered factors, incorporating corporate resilience and sustainable development goals (Hein-Pensel *et al.*, 2023). This perspective underpins the approach taken by the authors of this study in constructing an advanced AI readiness assessment for enterprises.

3. Research Methodology

The aim of this study is to develop a tool in the form of a questionnaire that enables a detailed assessment of artificial intelligence utilization by enterprises. This tool will not only help precisely determine a company's current level of advancement in AI but also evaluate its readiness for implementing more advanced AI-related technologies.

The survey, designed based on the presented AI maturity models and interviews with artificial intelligence experts, will allow organizations to gain a deeper understanding of their position in the context of AI utilization and identify key areas

that require development to more effectively leverage the potential of artificial intelligence.

The survey questions are grouped into five key categories: strategy, data, technology, human resources, and management. This approach aims to comprehensively examine an enterprise's readiness to implement and effectively utilize artificial intelligence. Within each category, respondents will have the opportunity to consider six questions, each with five possible levels of response.

Additionally, each question has been supplemented with references to three dimensions of AI implementation: social, organizational resilience, and sustainable development. The social dimension includes an analysis of solutions related to human-AI interactions, the impact of AI on job retention, the potential reskilling of employees, and their motivation for responsible use of new technologies.

The organizational resilience dimension pertains to a company's ability to respond to new challenges, recover data after disruptions, and maintain operational stability amidst the widespread use of AI technologies. Meanwhile, the sustainable development dimension focuses on more efficient resource management, reducing material and energy consumption, and supporting the concept of a circular economy. By incorporating these three dimensions, the survey provides a comprehensive view of an enterprise's readiness to implement AI, taking into account its impact on key areas of operation and sustainable development.

3.1 Strategy

This section focuses on the company's overall policy regarding the use of AI technology, its inclusion in strategic plans, allocation of financial and human resources, as well as the development of competencies and measurement of implementation outcomes. From the perspective of social factors, the responses reflect a general readiness to build human-machine relationships.

From the perspective of organizational resilience, this signifies the consideration of new internal and external circumstances triggered by the presence of AI, as well as its impact on managing and optimizing operations aligned with sustainable development goals.

Table 1. *General AI utilization strategy*

Question on or positions	Proposed response	Significance of the response in terms of the aspect
Does your company have a defined strategy for AI	1. No AI utilization strategy, and no projects are being conducted. 2. The strategy is under development but has not yet been defined or	- social: expresses the level of readiness to undertake actions in the area of human-machine relations

utilization?	implemented in the organization's operations. 3. General guidelines without a detailed strategy, lacking a detailed plan with clearly defined goals and projects. 4. Partial implementation of the strategy in selected areas or projects, but it is not yet fully integrated into the organization's operations. 5. Comprehensive and fully implemented strategy, encompassing multiple projects and initiatives supporting business objectives.	(artificial intelligence), - organizational resilience: a measure of the company's readiness to operate in an economic reality increasingly reliant on AI technologies, - sustainable development: reflects potential plans for using AI to improve the organization of material and energy resource management.
Is the AI strategy integrated with the overall company strategy, including goals related to responsible development?	1. No integration of the AI strategy with the overall organizational strategy. AI strategies are not linked to business objectives. 2. Initial integration of the AI strategy with the company's overall strategy, but this process is in its early stages and has not yet been fully realized. 3. The partial integration of the AI strategy with the company's overall strategy, limited to selected areas, but the integration is not yet comprehensive. 4. Advanced integration of the AI strategy with the company's overall strategy. Most AI initiatives are linked to key business objectives, although some areas may require further integration. 5. Full integration of the AI strategy with the overall organizational strategy, including business and strategic goals, creating a cohesive system supporting the organization's vision and mission.	- social: expresses the extent to which the integration of the AI strategy with the overall company strategy impacts how AI supports human-machine relations and its influence on employees, - organizational resilience: measures the company's ability to operate flexibly and adapt in an environment where AI is an integral part of strategic processes, - sustainable development: indicates whether the AI strategy is aligned with sustainable development goals, including resource management optimization and the reduction of energy and material consumption.
What resources (budget, personnel) are allocated for the development and implementation of AI projects, including those focused on responsible	1. Minimal resources allocated for the development and implementation of AI projects. Limited financial and human resources are available, which do not allow for significant initiatives. 2. Basic resources allocated for AI projects, with a limited budget and a team focused on selected, smaller-scale initiatives. 3. Moderate resources for the development and implementation of AI	- social: indicates whether the company allocates resources for developing AI competencies among employees and creating solutions that enhance human-AI relations, - organizational resilience: shows the extent to which the company invests in resources that support

resource management?	projects, with a clearly defined budget and a team responsible for medium-scale projects. 4. Significant resources dedicated to AI projects, including a substantial budget and specialized teams capable of executing large and strategic initiatives. 5. Comprehensive resources allocated for the development and implementation of AI projects, with a large budget and highly specialized teams capable of working on innovative and large-scale projects.	adaptability and survival during critical moments, including team training and safeguards, - sustainable development: allows an assessment of whether the budget and resources support initiatives that reduce energy and material consumption and improve resource management.
Does the company have a dedicated team responsible for AI strategy and development, considering its impact on sustainable development and the employee community?	1. No dedicated team is responsible for AI strategy and development. 2. A team dedicated to AI processes is being formed, but it has not yet been fully established or lacks a complete scope of responsibilities. 3. A team with limited responsibilities for AI strategy and development, whose activities are restricted to specific projects or initiatives. 4. A developed team with defined tasks responsible for AI strategy and development, with clearly specified roles, responsibilities, and projects, although it may lack full autonomy or resources. 5. An advanced and fully functional team with full responsibility for AI strategy and development, supported by appropriate resources, full operational autonomy, and top-level management support.	- social: shows the extent to which the company engages AI specialists in developing tools and programs that support safe interaction with technology, - organizational resilience: reveals whether the company has a team responsible for quickly responding to technological changes and associated risks, - sustainable development: indicates whether the team considers resource and energy management aspects within AI, enhancing control over the company's ecological footprint.
Does the company have plans for developing AI competencies that also include social and environmental responsibility?	1. No plans for AI competency development. 2. AI competency development plans are in the initial stages of preparation and have not yet been implemented. 3. Limited plans for AI competency development, focusing on basic training or selected groups of employees, without a broad development strategy. 4. Extensive AI competency development plans, including training activities for various groups of employees, though their	- social: suggests whether the company prioritizes the development of AI competencies among employees, which can contribute to their motivation and adaptation to working with technology, - organizational resilience: shows whether the organization focuses on developing competencies that support stability and

	implementation may still be incomplete. 5. Comprehensive AI competency development plans, encompassing a wide range of training sessions and workshops tailored to different skill levels and employee needs.	adaptability in changing technological conditions, - sustainable development: indicates whether competency development also addresses the optimization of resources.
Does the company have defined methods for measuring the success of implemented AI solutions, including their impact on the environment and society?	1. No defined methods for measuring the success of its AI solutions. Systematic evaluations or analyses of the effectiveness of implemented projects are not conducted. 2. Initial methods for measuring the success of AI solutions, but are very limited and do not include assessments of the technology's impact on the organization. 3. Moderately developed methods for measuring success, which may include several key performance indicators (KPIs), but these are not fully integrated into decision-making processes. 4. Advanced methods for measuring success encompassing a wide range of performance indicators that are regularly monitored and analyzed. 5. Comprehensive methods for measuring the success of implemented AI solutions, considering both short- and long-term impacts on business goals and operational efficiency.	- social: allows verification of whether the company monitors the social impacts of AI implementations, influencing the assessment of the effectiveness of actions concerning employees and their relationship with AI, - organizational resilience: enables evaluation of the extent to which AI outcomes support organizational resilience by measuring the technology's impact on the stability and adaptability of processes, - sustainable development: indicates whether the company uses AI performance metrics that consider reducing environmental impacts, including material and energy consumption.

Source: Authors' questionnaire.

It is worth emphasizing that the detailed answers in this section reflect not only the formal but also the practical process of preparing an AI implementation strategy.

3.2 Data

This section defines questions that assess the maturity level of data preparation and processing in AI processes, including data protection, quality assurance, integrity, and compliance with regulations. The responses also indicate the extent to which trust in AI technology is being built among employees, the company's resilience in

data management to ensure operational stability and the optimization of resource utilization from a sustainable development perspective.

Table 2. *AI utilization in data management*

Question on actions or positions	Proposed response	Significance of the response in terms of the aspect
Does the company have a data management strategy supporting AI projects, including goals related to responsible development?	1. No data management strategy dedicated to supporting AI projects. 2. Basic data management strategy, covering fundamental principles and practices, but not fully aligned with the needs of AI projects. 3. Moderately developed data management strategy that supports AI projects through defined procedures for data collection, storage, and processing, though further development may be required. 4. Advanced data management strategy specifically designed to support AI projects, including principles of security, data quality, and lifecycle management. 5. Comprehensive and fully integrated strategy encompassing advanced data management methods, including analysis, protection, and utilization to maximize value for AI projects.	- social: expresses the company's readiness to ensure data transparency and security, which impacts trust among employees and AI users, - organizational resilience: shows the extent to which the data management strategy supports the company's operational stability and adaptability in the face of AI-related challenges, - sustainable development: indicates how the data management strategy supports process optimization and responsible resource management.
Are data clean, organized, and easily accessible for AI projects, enabling operational efficiency and minimizing waste?	1. Disorganized and difficult-to-access data, unclear and hard to use for AI projects, significantly hindering their utilization. 2. Basic organization and accessibility of data, but data cleaning processes are inconsistent or inefficient, potentially impacting the quality of AI projects. 3. Moderate data cleanliness and accessibility, requiring additional processing before being used in AI projects. 4. Good data management practices, with data organized, clean, and easily accessible for AI projects, supported by clearly defined processes for data management and quality maintenance. 5. Excellent data quality and accessibility, highly organized and	- organizational resilience: assessing data cleanliness and organization is critical for ensuring the reliability of AI processes, enhancing the company's ability to respond flexibly to market changes, - sustainable development: organized and easily accessible data supports the reduction of resource waste, promoting efficient management of energy and data.

	readily available for AI project needs. The organization follows best practices in data management, ensuring optimal utilization.	
Does the company protect data used in AI projects from unauthorized access and breaches, ensuring compliance with legal requirements?	1. No safeguards in place to protect data used in AI projects from unauthorized access and breaches. 2. Basic data security measures, which may be insufficient to fully protect against advanced threats. 3. Moderate data protection, including mechanisms such as passwords and encryption, but the security strategy requires further development and the addition of advanced protection methods. 4. Advanced data security, featuring multi-level authentication systems and encryption technologies that ensure a high level of data security in AI projects. 5. Comprehensive data protection strategy, incorporating advanced security technologies, continuous monitoring, and rapid incident response.	- social: data protection strengthens the trust of employees and stakeholders in AI solutions, reducing the risk of privacy violations, - organizational resilience: data security plays a critical role in maintaining operational continuity, mitigating risks associated with security breaches, - sustainable development: responsible data management supports long-term operational stability, contributing to the efficient use of technological resources and energy required for data storage.
Are there procedures in place to ensure the quality and integrity of data used in AI projects?	1. No procedures to ensure the quality and integrity of data. 2. Basic data verification procedures, such as manual data checks before use in AI projects, but lacking systematic and automated processes 3. Moderate procedures ensuring moderate data quality and integrity, including partial automation. 4. Advanced data validation and monitoring procedures, including automated monitoring and maintenance systems, which are regularly updated and improved. 5. Comprehensive and systematic procedures ensuring data quality and integrity, incorporating advanced technologies and methodologies, such as continuous data quality monitoring, automated cleaning, and data enrichment.	- social: ensuring data quality enhances the reliability of results obtained from AI projects, building trust among users and employees, - organizational resilience: attention to data quality and integrity strengthens the reliability of AI projects, supporting operational stability and the company's adaptability, - sustainable development: optimizing data quality management procedures promotes efficient use of technological resources.
Does the company use	1. No adjustment of data, which is not fully compliant with applicable	- social: compliance with regulations during AI model

data to train models in compliance with applicable regulations?	regulations. 2. Partial data compliance with regulations, though compliance is incomplete, and processes are still being improved. 3. Moderate data compliance with most regulations, although areas for improvement remain to achieve full compliance. 4. High data compliance with regulations and established verification procedures. 5. Full compliance and monitoring, implementing best practices to ensure complete regulatory compliance, supported by continuous monitoring and external audits.	training strengthens the company's social responsibility and builds trust among stakeholders in implemented solutions, - organizational resilience: regulatory compliance enhances the company's resilience to legal risks, minimizing potential crises arising from non-compliance.
Does the company have the capability to process data in real-time, which is critical for applications requiring rapid AI response?	1. No real-time processing capability. 2. Basic real-time processing capabilities for selected systems, but they are not fully optimized or do not cover all necessary AI applications. 3. Moderate real-time data processing capabilities, sufficient for some applications requiring rapid AI response. 4. Advanced real-time data processing capabilities tailored to most AI applications requiring quick responses. 5. Full real-time data processing and scaling capabilities, able to support all applications requiring rapid AI response, with scalability to meet growing needs.	- organizational resilience: real-time data processing enhances the company's ability to respond promptly to challenges, - sustainable development: real-time data processing supports more efficient management of computational resources, promoting the sustainable use of technological infrastructure.

Source: Authors' questionnaire.

This part of the questionnaire aims to obtain information on how important it is for the company to ensure high quality of data, which is then used in processes using artificial intelligence.

3.3 Technology

The technical layer always pertains to the early stages of implementing new IT technologies. This section addresses fundamental questions about readiness to deploy AI solutions. It covers hardware, human resources, access to cloud resources dedicated to data storage and processing, identification of major technical challenges, and procedures for testing and scaling AI models.

From a social perspective, this involves building skilled teams to work with AI technology and supporting adaptability to technological challenges, scalability, and system flexibility, as well as preparedness for additional risks to maintain operational stability. From a sustainable development perspective, it reflects awareness of optimizing energy use and avoiding excessive investments.

Table 3. *AI implementation in the technical layer*

Question actions or positions	Proposed response	Significance of the response in terms of the aspect
Is the IT infrastructure ready for AI implementation, enabling efficient resource utilization and operational stability?	1. No readiness of the infrastructure to implement and support AI solutions. 2. The infrastructure is partially ready to handle limited AI implementations but requires expansion or modernization. 3. Average readiness of the infrastructure to support current AI projects, though it may not scale effectively with future growth and complexity. 4. Advanced readiness of the infrastructure to support the most current and planned AI solution needs. 5. Full readiness of the infrastructure, fully modernized and scalable, providing support for advanced and complex AI deployments across the organization.	- social: assessing IT infrastructure readiness considers its ability to support employee activities and their collaboration with AI systems, - organizational resilience: IT infrastructure readiness strengthens the company's ability to adapt and address challenges associated with AI implementation, - sustainable development: IT infrastructure supporting AI can help reduce energy and resource consumption.
Does the company have an IT team that supports AI projects, including their responsible implementation ?	1. No IT team support, creating a barrier to the execution and development of AI-related initiatives. 2. Basic IT team support, offering fundamental assistance for AI projects but lacking specialization in technology and relevant skills. 3. Moderate IT team support for some AI projects, though the team does not specialize in this field. 4. Advanced IT team support, with knowledge and skills in AI, supporting a wide range of artificial intelligence projects. 5. Specialized IT team dedicated to AI, fully engaged in supporting and developing AI projects, equipped with advanced skills and tools necessary for working on complex AI solutions.	- social: indicates whether the IT team is involved in actions that ensure the safe and effective implementation of AI, - organizational resilience: the IT team enhances the company's stability by quickly addressing technological issues and supporting project scalability, - sustainable development: the IT team can contribute to optimizing technological processes

Does the company use cloud computing in AI projects to ensure scalability and optimal resource utilization?	1. No use of cloud computing in AI projects, limiting the scalability and flexibility of solutions. 2. Initial use of cloud computing, but on a limited scale, primarily for single projects or experiments. 3. Moderate use of cloud computing to support AI projects on a medium scale, with partial integration of cloud services and resources. 4. Advanced use of cloud computing, intensively supporting most AI projects and utilizing the cloud as a key infrastructure component. 5. Full use of cloud computing in AI projects, with comprehensive integration of cloud services, platforms, and tools, ensuring high scalability, efficiency, and innovation in solutions.	- social: the use of cloud computing can enhance the availability of AI tools for employees, facilitating their implementation and adaptation, - organizational resilience: cloud computing enables the company to scale projects rapidly and adapt flexibly to technological demands, - sustainable development: the cloud allows for more efficient use of computational resources, reducing the need for additional hardware and infrastructure investments.
What are the main technological challenges related to the implementation and maintenance of AI projects?	1. Limited computational resources that cannot support the advanced calculations required by AI projects. 2. Insufficient data quality, including issues with cleanliness, completeness, and preparation for effective use in machine learning. 3. Lack of experience and specialized skills in AI, hindering the development and deployment of new solutions. 4. Data security and privacy in AI projects, particularly in the context of increasing regulations regarding data protection. 5. Integration of AI solutions with existing IT infrastructure and business processes, requiring complex coordination and change management.	- social: technological challenges may include barriers to adapting AI to meet employee needs, - organizational resilience: identifying technological challenges helps the company prepare for risks and enhance its ability to operate stably in an AI-driven environment, - sustainable development: indicates the extent to which technological challenges are associated with excessive resource consumption and what measures the company takes to optimize their use.
Are there procedures in place within the company for deploying and testing AI models, to ensure their	1. No procedures for deploying and testing AI models, making systematic verification and quality assurance of solutions difficult. 2. Basic deployment and testing procedures, focusing on manual testing and single-use cases without a comprehensive strategy or automation.	- social: testing procedures for AI models help ensure their ethical and responsible application, building trust among employees and users, - organizational resilience:

reliability and compliance with requirements?	3. Moderate procedures, including both manual and partially automated tests as well as basic deployment processes, but they may not be suited for all AI scenarios. 4. Advanced procedures for deploying and testing AI models, including test automation, continuous integration, and continuous delivery (CI/CD), as an integral part of AI project lifecycles. 5. Comprehensive and integrated deployment and testing procedures, providing continuous monitoring, large-scale automation, and process optimization, ensuring the high quality and efficiency of AI projects.	standards for deploying and testing AI models enhance the company's operational stability, minimizing risks of technological errors, - sustainable development: effective model deployment procedures can reduce the need for repeated data processing and optimize energy use.
Does the company have the capability to rapidly scale AI projects, enabling flexible responses to business needs?	1. No capability to scale AI projects, due to infrastructural limitations or lack of resources. 2. Limited capability to scale AI projects, but it is constrained and does not allow quick adaptation to greater demands. 3. Moderate capability to scale AI projects, providing some level of flexibility and adaptability, though delays or resource-related challenges may occur. 4. Advanced capability to scale AI projects, supported by scalable cloud infrastructure and resources that enable efficient management of increasing demands. 5. Full capability to rapidly scale all AI projects, ensuring immediate adaptation to growing demands and scalability without affecting system performance or stability.	- organizational resilience: the ability to rapidly scale AI projects enhances the company's flexibility and capacity to respond to market changes and technological challenges, - sustainable development: scalability of AI projects supports efficient use of technological resources and avoids excessive investments in infrastructure.

Source: Authors' questionnaire.

This part of the study will indicate the operational level of technological readiness for the implementation of artificial intelligence seen from a broad perspective.

3.4 Human Resources

The next section of questions focuses on qualifications, training, acquiring additional competencies, retaining or recruiting skilled employees, and fostering engagement in AI technology implementation.

From a social perspective, the questions reflect the need to build professional AI teams, thereby contributing to the overall development of employees, encouraging their creativity while maintaining a sense of security. Building resilience through the operation of skilled AI specialist teams can enhance the company's ability to respond to new challenges associated with emerging technologies. In terms of sustainable development, strengthening human competencies can contribute to efficient and economical resource management.

Table 4. *AI utilization training*

Question on actions or positions	Proposed response	Significance of the response in terms of the aspect
Does the company have specialists in the field of artificial intelligence?	1. No specialized knowledge or experience among employees, limiting the potential for AI project development. 2. Employees have basic AI knowledge but lack practical experience with complex projects. 3. Moderate experience and specialized knowledge in AI, enabling the team to work on moderately complex projects. 4. Advanced competencies and significant experience among AI specialists, allowing the company to execute innovative and complex projects. 5. World-class experts with exceptional knowledge and experience in AI, positioning the organization as a leader in innovation and technological capabilities.	- social: the presence of AI specialists in the company can support employee development, enhancing motivation and opportunities for collaboration with technology, - organizational resilience: AI specialists improve the company's ability to respond to evolving technological demands and develop innovative solutions.
What AI training is offered to employees?	1. No AI training available. 2. Limited introductory AI training focusing on general concepts without delving into detailed techniques or tools. 3. Intermediate AI training covering specialized topics at a mid-level, enabling employees to develop specific skills. 4. Advanced AI training and workshops, including practical sessions using the latest tools and technologies, supporting the development of AI competencies. 5. Comprehensive AI development program, including a range of courses	- social: AI training enables employees to develop skills and adapt to new demands, increasing their sense of security in the workplace, - organizational resilience: investing in employee development strengthens the organization's ability to adapt to dynamic technological changes, - sustainable development: training can promote more efficient use of technology,

	from basic to advanced levels, mentoring, practical projects, and continuous education, allowing employees to grow and specialize in various AI domains.	reducing human and technological resource waste.
Does the company collaborate with external experts to enhance its competencies in artificial intelligence?	1. No collaboration with any external experts specializing in artificial intelligence. 2. Limited collaboration with external experts, focusing on occasional consultations without long-term agreements for AI development in the organization. 3. Moderate collaboration with external experts, including partnerships with consulting firms to support selected AI-related initiatives. 4. Advanced collaboration with a wide range of external experts, potentially including joint research projects, competency development, and knowledge transfer in AI. 5. Strategic partnerships with leading consulting firms, research institutions, and technology companies.	- social: collaboration with experts enables employees to gain knowledge and experience that can support their professional growth, - organizational resilience: partnerships with external experts enhance organizational flexibility and the ability to respond quickly to new technological challenges, - sustainable development: collaboration can lead to more efficient technology implementation.
Does the organization have a culture of innovation that supports AI projects?	1. No culture of innovation supporting AI projects. Initiatives related to AI are very rare or not promoted. 2. Emerging culture of innovation, but support for AI projects remains very limited. 3. Moderate culture of innovation that supports AI projects but lacks sufficient resources or full engagement at all levels. 4. Advanced culture of innovation, promoting and supporting AI projects on a broad scale, with a clear commitment from management and available resources. 5. Pervasive culture of innovation within the organization, with deeply rooted support for AI technology. The company initiates and promotes continuous innovations related to artificial intelligence at all levels and across all departments.	- social: a culture of innovation encourages employees to engage in new projects, supporting their creativity and collaboration with technology, - organizational resilience: promoting innovation enhances the company's ability to address technological challenges and maintain competitiveness in the market.
Does the company attract	1. No efforts to attract or retain AI specialists.	- strategies for attracting and retaining specialists

and retain AI specialists, and if so, how?	2. Basic recruitment activities, such as standard job postings, without offering special incentives or development programs targeted at AI specialists. 3. Moderate strategy for attracting specialists, including competitive salaries and training opportunities, but lacking long-term career development plans in this field. 4. Advanced programs and benefits aimed at attracting and retaining AI specialists, offering attractive compensation packages, perks, and opportunities to work on innovative projects. 5. Strategic and comprehensive approach to attracting and retaining top AI specialists, including unique career paths, mentoring programs, and fostering a strong culture of innovation that attracts and motivates experts for long-term engagement.	impact team stability, skill development, and organizational relationships, - organizational resilience: retaining AI specialists strengthens organizational stability and the ability to sustain projects in a dynamic technological environment.
Are employees engaged in AI projects and do they have influence on their direction?	1. No engagement in AI projects, and their opinions and suggestions do not influence the direction of these projects. 2. Limited engagement in AI projects, with minimal and typically informal opportunities to influence decisions. 3. Moderate engagement in AI projects. Employees may participate in certain project phases and influence some decisions, but their involvement is not systematically utilized.. 4. Advanced engagement in AI projects, with significant influence on their direction. Employees are encouraged to share their opinions and ideas, which are considered in decision-making processes. 5. Full engagement and influence on the direction of AI projects. Their opinions, experience, and ideas form the foundation for strategies and innovations in AI-related projects.	- social: involving employees in AI projects fosters their sense of responsibility, motivation, and the development of skills related to new technologies, - organizational resilience: employee participation in projects enhances the organization's ability to create better-aligned solutions and strengthens their acceptance within the company.

Source: Authors' questionnaire.

The responses in this section show employee participation in implementing and shaping the use of AI technologies in the company.

3.5 Management

The final section introduces questions regarding the integration of management systems with AI-supported solutions, addressing challenges in change management, incident management, and AI-related risk management. The survey also focuses on auditing effectiveness and security, as well as knowledge and innovation management in AI.

Transparency and accountability in actions, the degree of understanding and acceptance of new technologies, change management, and error prevention are critical from a social perspective. Incorporating AI technologies into decision-making processes can also enhance the company's resilience in terms of operational stability and responsiveness to unforeseen challenges. Optimal resource management and improvements in process efficiency align with the goals of sustainable development.

Table 5. Management of AI-Driven Projects

Question on actions or positions	Proposed response	Significance of the response in terms of the aspect
How is AI project management integrated into the company's management structures, supporting consistency and accountability?	1. No integration between AI project management and the company's management structures, with projects operating independently or outside the organization's core activities. 2. Limited integration of AI project management with management structures, having minimal impact and not being prioritized. 3. Partial integration of AI project management within specific departments or teams, with some level of coordination and management support, but without full integration into organizational structures. 4. Advanced integration of AI project management, strongly embedded within management structures, with clear communication pathways and interdepartmental collaboration supporting the company's strategic goals. 5. Full integration and strategic management of AI projects as a core element of the organizational strategy, fully embedded in management structures and decision-making	- social: integrating AI management with existing structures supports transparency and enhances employee understanding of projects, - organizational resilience: embedding AI into management structures strengthens organizational stability and improves responsiveness to technological challenges, - sustainable development: managing AI projects within existing structures can promote more efficient resource utilization.

	processes, ensuring this technology is prioritized.	
What are the change management procedures in AI projects that support their effective implementation?	1. No defined change management procedures for AI projects, resulting in an "ad-hoc" approach to implementing and managing changes. 2. Basic reactive procedures at a fundamental level, mainly focused on addressing problems after they occur, without proactive planning or analysis. 3. Procedures with elements of change management planning, including planning, communication, and impact assessment, but they may sometimes be inconsistent or inefficient. 4. Advanced change management procedures, incorporating comprehensive risk management and monitoring the effects of changes, ensuring smooth optimization of AI projects. 5. Comprehensive change management procedures integrated with continuous improvement methodologies. These include a broad range of activities from initial analysis through planning to implementation and post-implementation evaluation, supporting AI project development and adaptation to changing conditions.	- social: effective change management influences the level of employee acceptance of AI, supporting their adaptation to new technologies, - organizational resilience: change management procedures enhance the company's ability to respond to unforeseen challenges and maintain operational stability.
Are there incident management and response procedures for handling errors or unforeseen consequences of AI operations?	1. No incident management procedures related to AI. 2. Basic reactive procedures that are triggered after an incident occurs, but do not include proactive risk management or comprehensive responses. 3. Structured incident management procedures, but they may not be fully tailored to the specific challenges of AI. 4. Advanced procedures encompassing both proactive risk management and rapid incident response, supported by root cause analysis and impact assessments of AI errors. 5. Comprehensive procedures, including continuous AI system monitoring, proactive identification of	- social: incident response procedures can increase the sense of security among employees and stakeholders, protecting them from the effects of unforeseen AI errors, - organizational resilience: incident management strengthens the company's ability to mitigate technological risks and maintain business continuity, - sustainable development: effective incident management enhances the

	potential risks, rapid incident response, and learning processes to minimize future errors and unforeseen consequences.	efficiency of technological processes.
Does the company employ risk assessment and impact evaluation processes for AI at all stages of the AI project lifecycle?	1. No risk assessment and impact evaluation processes for AI at any stage of the AI project lifecycle. 2. Limited risk assessment and impact evaluation processes are applied only at selected stages of the AI project lifecycle. 3. Moderate application of risk assessment and impact evaluation processes at most stages of the AI project lifecycle, though the approach may not yet be fully systematic or comprehensive. 4. Advanced and systematic risk assessment and impact evaluation processes are applied at all stages of the AI project lifecycle, enabling effective risk management. 5. Comprehensive and integrated risk assessment and impact evaluation processes, including continuous monitoring and risk updates at all stages of the AI project lifecycle, ensuring the highest level of risk management and informed decision-making.	- social: risk assessment considers potential effects on employees and society, enhancing the company's accountability in the AI domain, - organizational resilience: systematic risk assessment strengthens the organization's ability to anticipate and prepare for challenges within AI projects, - sustainable development: AI impact evaluation processes support more mindful resource utilization.
Are regular audits and reviews of AI systems conducted to assess compliance, effectiveness, and security?	1. No audits or reviews of AI systems, which may result in a lack of control over compliance, effectiveness, and security. 2. Occasional audits and reviews of AI systems, but they are not conducted regularly. 3. Periodic audits and reviews of AI systems, providing some level of control and identification of potential issues, though the process may still require optimization. 4. Regular and systematic audits and reviews of AI systems, covering aspects of compliance, effectiveness, and security. 5. Comprehensive AI system audits with continuous monitoring enable not only checks for compliance,	- social: regular audits increase stakeholder trust and ensure that AI systems operate responsibly and transparently, - organizational resilience: audits enable early detection of issues, strengthening organizational stability and technological security, - sustainable development: AI system reviews support better optimization of their operations.

	effectiveness, and security but also ensures a high level of continuous improvement in AI-related systems.	
Does the company have knowledge and innovation management plans in the AI domain that support technological and organizational development?	1. No mechanisms for monitoring and reporting progress in AI projects, making it difficult to assess progress and effectiveness. 2. Basic monitoring and reporting mechanisms, such as status reports, but they are not systematic. 3. Periodic mechanisms for monitoring and reporting AI project progress, providing some level of control and review, though lacking continuity and detailed action plans. 4. Advanced monitoring and reporting mechanisms, including regular progress reviews, use of progress-tracking tools, and automated reporting. 5. Comprehensive and integrated systems for monitoring and reporting AI project progress, enabling automatic tracking of key indicators and real-time data analysis.	- social: knowledge management supports the development of employee skills, - organizational resilience: knowledge management plans enhance the organization's ability to adapt and respond to new technological challenges.

Source: Authors' questionnaire.

The answers provided in the above section, relating to the detailed components of the AI-Driven Project management procedures and the risks associated with them, are an important indicator of maturity at the decision-making level.

4. Research Results

The presented solution was practically implemented in 2024. The tool will be continuously improved using collected data and market observations. Emerging user needs will provide a solid foundation for introducing enhancements, allowing the tool to better adapt to the evolving business environment where artificial intelligence plays a key role in development. Based on selected indicators, the company will monitor progress and implement adjustments to align the tool with current market needs and demands.

The research focused on a specific company operating in the global software development sector. The company employs a modern work model, favoring remote work, which allows it to engage talents from across Poland as well as from other countries. Specializing as a software house, the company develops custom applications and systems on demand. It consists of various departments, including programmers, testers, graphic designers, and artificial intelligence specialists.

The research examined activities related to implementing AI within the company, covering all key aspects such as strategies, implementation processes, technology efficiency, and the competencies of the AI team.

The AI team focuses primarily on projects involving computer vision and machine learning (ML). Initially, the team worked on developing systems capable of identifying available parking spaces through image analysis from cameras. They also developed models for detecting foreign objects on production lines, which was critical for ensuring the safety and quality of goods produced by the company's clients. Additionally, the team collaborated with Scania on a pilot project analyzing data from truck components to predict potential failures based on hundreds of parameters. The company's data science team also significantly contributed to the creation of an internal ChatGPT for the entire holding group.

This project aimed to develop a tool for all group companies that ensured compliance with GDPR regulations and safeguarded confidential information within the group. Through this initiative, the team demonstrated how AI technology could be effectively tailored to corporate-specific needs while enhancing security and privacy standards in internal communication.

During the evolution of AI technology, the company's management recognized the need for a patient approach in building an experienced AI team and executing initial commercial projects and tools. In the early stages of AI development, the company aimed for rapid deployment of AI-based solutions, which proved to be a premature assumption.

Over time, the management realized that success in AI requires time, patience, and gradual competency development. This understanding facilitated more effective planning and implementation of new solutions. As a result, the company can now fully leverage AI's potential, enhancing its service offerings with more advanced technologies and gaining a competitive edge.

Tables 6-9 illustrate the responses of company specialists to survey questions concerning the level of AI advancement within the organization. These responses verified the company's readiness to implement further AI-based solutions.

Table 6. Summary of responses in Section 1: Strategy

Problem	Level
Defined AI strategy	3
AI strategy integrated with the company's overall strategy	2
Resources allocated for AI project development	3
Dedicated team responsible for AI strategy and development	3
AI competency development plan	1
Metrics for assessing the success of AI implementations	2

Source: Authors' questionnaire.

Table 7. Summary of responses in Section 2: Data

Problem	Level
Data management strategy supporting AI projects	2
Quality of data available for AI projects	2
Protection of data used in AI projects	3
Procedures ensuring data quality and integrity in AI projects	1
Use of data for training models in compliance with regulations	4
Real-time data processing capability	1

Source: Authors' questionnaire.

Table 8. Summary of responses in Section 3: Technology

Problem	Level
Readiness of IT infrastructure for AI implementation	3
IT team supporting AI projects	2
Use of cloud computing in AI projects	4
Addressing technological challenges in AI projects	2
Procedures for implementing and testing AI models	2
Ability to quickly scale AI projects	2

Source: Authors' questionnaire.

Table 9. Summary of responses in Section 4: Human resources

Problem	Level
AI specialists in the company	3
AI training programs	1
Collaboration with external AI experts	2
Innovation culture supporting AI projects	1
Attracting and retaining AI specialists	2
Employee involvement and influence in AI project direction	4

Source: Authors' questionnaire.

Table 10. Summary of responses in Section 5: Management

Problem	Level
Integration of AI projects into management structures	3
Change management in AI projects	1
Incident management and response for AI-related issues	2
Risk assessment and impact evaluation in the AI project lifecycle	2
Audits and reviews of AI systems for compliance, effectiveness, and security	4
Knowledge and innovation management in the AI domain	1

Source: Authors' questionnaire.

The response scores shown for each section will be further averaged and interpreted as an effective indicator expressing the sum of all the detailed activities or positions.

5. Discussion

Analyzing the questions related to the strategy of artificial intelligence

implementation within the studied company (Table 6), a clear lack of planning for developing further AI competencies becomes evident. The management currently believes that the existing competencies are sufficient to execute ongoing projects. However, this approach could pose significant challenges when attempting to undertake larger initiatives in the future. The average score across the six questions is 2.34, indicating that the company is at a moderate level of advancement regarding its overall AI strategy.

When examining how the company handles data management in the context of AI (Table 7), the situation appears weak. There are no established procedures to ensure data quality and integration, nor is there the capability to process data in real time. However, the company demonstrates high compliance with current legal regulations concerning data, which is a notable strength, as reflected in the results. The average score for the six questions in this category is 2.17.

In the technology category (Table 8), the company achieves the highest score compared to the other areas, with an average of 2.5. With over 15 years of experience in software development, the company possesses strong technological foundations and infrastructure at a relatively high level. Particularly noteworthy is the intensive use of cloud solutions in projects, including those involving artificial intelligence. Although AI initiatives in the company are relatively new, resulting in average scores for the remaining questions in this area, their promising potential is already apparent.

The analysis of responses regarding human resources in the context of AI (Table 9) highlights areas requiring significant improvement, particularly in terms of AI technology training and fostering an innovation culture that supports AI projects. These activities are currently absent in the organization. However, a notable strength revealed in the analysis is the presence of experienced AI specialists, which represents a valuable asset for the company.

Additionally, the AI department holds significant influence in shaping the strategy and development of artificial intelligence within the organization, enjoying considerable autonomy in its operations. This creates an environment where the input of these specialists has a meaningful impact on strategic decisions. The average score of 2.17 across the six evaluated questions indicates that the area of training and AI specialists within the organization is at a moderate level.

AI project management (Table 10) in the analyzed organization is also at a very average level. The main issues include the absence of change management procedures and a lack of structured methods for monitoring and reporting progress in AI projects. A positive aspect, as reflected in the results, is the company's regular audits and reviews of AI systems, which focus on compliance with regulations and security. The average score, based on six questions, stands at 2.17, indicating that the organization still has substantial room for improvement in this area.

It is evident that in nearly every area, except for technology, there are aspects that the company has yet to initiate - either due to a lack of awareness of their importance or the belief that they are not currently necessary. The absence of scores at level 5 highlights how far the company still has to go in achieving a truly advanced position in the field of AI. This also underscores the need for a more systematic approach to future challenges.

However, four aspects - compliance with data regulations, the use of cloud computing, the influence of specialists on AI development direction, and audits of AI systems for compliance and security - received high scores of 4. This indicates a relatively strong internal expertise in these areas, which also positively impacts the activities of the Data Science (AI) department.

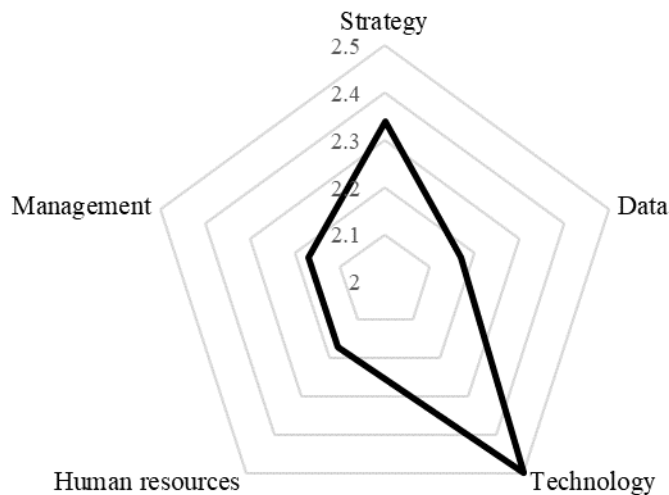
Most frequently, the company gave scores of 2 across the evaluated AI-related areas. This dominant trend suggests that many AI-related issues are at a very early stage of development within the organization. This is not due to a lack of awareness of their existence but rather because the actions taken thus far are only at the initial stages of implementation.

Let us now proceed to the analysis of average scores in each area. At first glance, it is noticeable that the average scores across the different areas are very similar (Figure 1). This suggests that the company is developing its AI-related activities in a balanced manner, which is a highly positive phenomenon. As a result, no specific area is being significantly neglected by the organization.

The technology area performs the best, which is unsurprising given that the company has always been actively involved in various technological sectors. The primary challenge for the organization lies in the quality and cleanliness of the data used by the Data Science department specialists. This issue is not drastically reflected in the overall average scores, as it is offset by the high score for data compliance with regulations, which positively impacts the overall average.

The average score across all sections of the survey is 2.27. With this result, the organization concludes its assessment of readiness to implement more advanced technologies in the context of artificial intelligence.

This score indicates that artificial intelligence is not an unfamiliar concept for the organization. The company has already taken initial steps toward AI, including developing a strategy, organizing workflows, implementing technological solutions, acquiring knowledge, and adapting to legal regulations. Achieving this level with such a small team specializing in AI can be considered an excellent result and a promising indicator for the future. It also demonstrates the organization's readiness to adopt more advanced AI components.

Figure 1. Summary of Response Levels in Sections

Source: Authors' calculations.

The analysis of the final results for the evaluated company also reveals significant potential for further development. The organization is not yet halfway to achieving the most advanced and well-structured solutions in the field of AI, emphasizing the substantial work that remains ahead in this area.

To improve this outcome, the organization should focus primarily on areas that received a score of 1 in the survey - those that are currently non-functional within the company's structures. Addressing these issues could significantly enhance the overall score and positively impact progress in other AI-related areas. By starting with these elements, the company can gradually build a stronger position in the AI domain, which will not only improve its internal processes but also open up new opportunities for further development.

6. Limitation of the Study

Comparing the results of the proposed analysis with other well-known AI maturity models is challenging due to the entirely different format of this framework. The evaluation criteria introduced in the presented model are derived solely from the collective experience of experts working in the IT industry.

However, if we analyze the results in the context of the very general AI maturity criterion known as the "three waves of autonomy" (Launchbury, 2024), the tested company would position itself between the Algorithmic Wave and the Augmentation Wave, which corresponds to the first and second stages of automation implementation.

The first wave is already clearly visible in most enterprises, particularly in areas where simple algorithms accelerate decision-making processes. The second wave focuses on automating repetitive tasks and processing data in controlled environments, with its implementation occurring currently (2010 - 2030). Meanwhile, the third wave aims to enable machines to work independently in real-world conditions and is projected for the coming decades (initial implementations around 2025).

7. Conclusions

Developing projects related to artificial intelligence is a complex process that requires a significant amount of time and the involvement of many individuals, not just those who work with AI technology on a daily basis. Identifying the company's current position on the AI advancement map will undoubtedly aid in better planning and implementing new initiatives related to this technology.

This study aimed to develop a professional questionnaire to assess the extent of AI utilization within a company and accurately determine its position in this area. The survey provides insights into AI integration and its development stage within organizational structures. While primarily targeted at IT specialists, its universal scope makes it suitable for managers across various industries and companies adopting or utilizing AI technology.

Survey results show that the tested company takes a balanced approach to AI implementation, with the highest score in technology, reflecting solid technical foundations. However, there are significant gaps in AI strategy, data management, and human resources. The lack of planning for further AI competencies and weak data integration processes may impede future AI projects. Addressing these gaps is essential for scaling up AI initiatives.

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