

ARTIFICIAL INTELLIGENCE: CHALLENGES AND BENEFITS FOR BUSINESS

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Abstract. The paper aims to explore the benefits and challenges that artificial intelligence (AI) brings to business. The performed tasks are related to: (1) an a priori study of literary sources focused on the positive and negative impact of AI for business organizations; (2) an empirical study to establish the attitudes among business representatives in Bulgaria towards the application of artificial intelligence (AI). The results, from an empirical pilot study, show that the Bulgarian business representatives see the positives of AI, related to reducing time and money by automating routine processes and tasks, as well as in marketing customer data mining activities and in analysing the big data of the market. AI concerns focus on the need for: deep technical knowledge, upgrading existing software, continuous training, and reskilling of the workforce. There is no preponderance of fears or positive expectations.

Keywords: Artificial Intelligence, Impact of Artificial Intelligence on Business.

JEL Classification: M10, O33.

1. Introduction

The artificial intelligence (AI) is one of the “disruptive technologies” in the “arsenal” of digital transformation. The development of AI has the potential to affect various areas of social life and economic activities, finding applications, for example, in autonomous vehicles, finance, smart cities, and healthcare (Kumar et al., 2023), banking industry (Mohamed & Faisal, 2024).

Digital transformation affects various sectors and is implemented where the need for improvements is realized, for example, in production processes in order to achieve a sustainable business in the production of cosmetic products (Meidutė-Kavaliauskienė et al., 2023), smart manufacturing (Hong & Xiao, 2024) or attention is paid to the role of new technologies in logistics processes and the expansion of logistics with the help of virtual components (Demirova, 2023) or attention is paid to the trust and security of AI (Habbal et al., 2024).

One of the goals of sustainable development is expressed in “Decent work and economic growth” (Skvarciany & Astikė, 2022). Business development can be supported by the financial sector (Kravec & Jurevičienė, 2022). Yes, borrowed funds can be used to implement

new technologies, but can only borrowed funds solve problems and ensure development? Why not look for opportunities to extract value from business data and AI (Stukalina & Zervina, 2023)? For example, as the data obtained when measuring the effectiveness of marketing activities (Skačkauskienė & Nekrošienė, 2022) need appropriate indicators to evaluate the effectiveness (Skačkauskienė et al., 2023), if processed with adequate algorithms and modern tools could lead to additional revenue from sales, instead of an increase in liabilities to a banking institution.

Alternative solutions can also be applied, such as social innovation, which has been found to be a factor in the digital transformation of food industry enterprises in Eastern Europe (Varbanova et al., 2023).

Experience and history show that most innovations that are the result of scientific and technical progress promise benefits, but carry risks, and also cause fear of the unknown.

The report aims to explore the benefits and challenges that accompany AI as it is implemented in business organizations.

The set research tasks refer to: (1) conducting an a priori study of literary sources aimed at the positive

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and negative impact of AI on business; (2) developing a methodology and carrying out an empirical study on the attitudes of business representatives in Bulgaria towards the application of artificial intelligence and their attitude towards its benefits and the problems it brings with it.

The structure of the scientific report is tailored to the fulfillment of the tasks thus set and includes: an apriori study of threats and benefits of AI for business; method of empirical research; presentation of main results and analysis by comparison and hypothesis testing.

2. Apriori study

2.1. Challenges that AI gives rise to for business

Implementing ChatGPT AI in business is hard. Data privacy, bias, and transparency are the challenges that humanity is the most concerned with. Moreover, businesses require experienced and skilled workers to handle the complexity and advancement of ChatGPT AI technology. According to Arman and Lamiyar (2023) there are a few threats that should be considered before introducing too much power into AI. The first threat is lack of human touch. Even though this does not sound like a threat, providing empathy and emotional support to customers is key to a successful business. Lack of human interaction may lead to exasperation, discontent and overall disconnection from the brand and decrease customer trust and loyalty. ChatGPT AI models are programmed in a way that holds a significant amount of data which possesses a risk for errors. As a result, it could be challenging for ChatGPT AI to understand and process the complexity and nuances of human language. Further, this may lead to irrelevant answers to customers' questions, damaging the business's reputation. The use of ChatGPT AI in customer service could affect and endanger security and data privacy, leading customers to avoid unveiling personal data with a chatbot. While ChatGPT AI may save businesses in the long run, significant upfront costs may be associated with implementing the technology, including training, maintenance, and integration with existing systems. The use of ChatGPT AI in e-commerce provokes ethical considerations about the use of people's data, bias in AI, and manipulation of one's behaviour.

In the financial sector experts are concerned about job displacement (economic suffering), over-reliance on automation, data privacy and security risks, biased algorithms, and regulatory challenges. Chatbots can replace humans completely as they become more and more available in finance. For example, the public can use them in customer service, completing simple tasks such as loan processing and account opening, leading to unemployment and competition for skilled personnel. The potential risk for mistakes while using AI is significant and should not be taken lightly, especially when talking about institutions like banks and hospitals—places that rely heavily on people's skills, education, and years of experience. If such institutions cannot fix the problem on time because there are not enough specialists on

site, businesses can witness huge losses – financial and reputational. Because ChatGPT AI works with a lot of information, data privacy and security are vulnerable to unwanted cyber-attacks. Bias in AI can occur if programmed with biased algorithms. To avoid regulatory challenges such as data privacy, transparency, and accountability, financial institutions must follow certain EU guidelines—for example, General Data Protection Regulation [GDPR]. Using too much AI may affect creativity and innovation, as professionals become more and more attached to AI for ideas and solutions. AI can decrease humans' ability to develop new skills and to adapt to changes in technology and business demands. It could be an obstacle for the small business to implement to its daily use ChatGPT AI as those systems are still quite expensive. Cheatham et al. (2019) emphasize that privacy violations, discrimination, accidents, and manipulation of political systems are a sword with two blades very well known amongst experts and will always encourage attention and precautions.

The most dangerous consequences of AI gone wrong are the loss of human life or the compromise of national security. AI can be negatively affected by technical and processing problems across the whole operating system. For instance, one significant business institution faced an adversity after its consent software did not recognize trading matters because the data feeds no longer included all customer trades. In addition, hackers are able to benefit from evidently unresponsive to threats marketing, health, and financial data which businesses gather to enrich their own AI systems. If security measures are not adequate, criminals can easily build false identities and use them for venal purposes. Tornjanski et al. (2021) states that according to recent research the year 2019 was marked by nearly 2 billion vulnerabilities to the Internet of Things, while companies' cyber-attacks were the biggest threat during 2020. As further highlighted, such threats can lead to significant financial and non-financial losses and negatively affect governments, organizations, individuals, and "all cyber world" FBI reports that the approximate number of "ransomware attacks" on plants per day is 4,000. During 2017 the cost of cyber-attacks was \$5 billion. Around \$6 trillion was the annual loss by the end of 2021. 49 percent of businesses around the world experienced reputation, revenue and sensitive information losses. The key concern for all businesses is security. Last but not least, Mallikarjunaradhya et al. (2023) says that incorporating AI into cloud security demands constant exploration, learning, and adaptation. The future of cloud security is intelligent. Just do not underestimate its weaknesses.

2.2. Business benefits of implementing AI

The apriori study of the benefits that business organizations can achieve by applying AI to their activities was carried out among research papers published in publications that are indexed in Scopus. 12 publications from the period 2000–2024 have been selected that have more

than 5 citations and reflect the business benefits of AI. The results allow the following grouping of the examples, depending on the criteria: possibility of technical and technological integration, functional area in the business organization, and economic sector in which the activity is carried out.

Examples of technical and technological integration are presented for:

- The integration of AI with blockchain, which can benefit businesses by securely sharing data and automating business processes, also serves to create applications for various business sectors, while recognizing that the merging of the two technologies overcomes some of their weaknesses (e.g., AI reliability and blockchain scalability) if applied independently (Kumar et al., 2023).
- The idea of integrating the work process management system with AI techniques (M.D.R.- Moreno & Kearney, 2002) is developing and can serve for planning and generating proposals for solving a defined problem (Enholm et al., 2022). Research is yet to expand to establish the application areas and benefits of AI-blockchain integration (Kumar et al., 2023).

Functional areas in the business organization where certain processes can be improved with the participation of AI:

- Finance and accounting – AI and blockchain integration can contribute to businesses in terms of secure transactions, financial and accounting operations (Kumar et al., 2023).
- Marketing – AI can be used to achieve the following goals: increasing the efficiency and accuracy of marketing processes and strategies; improving customer service and providing a personalized user experience (Enholm et al., 2022), improving processes in B2B marketing (Moradi & Dass, 2022); social media marketing activities (Kumar et al., 2023).
- Human resource management – AI has the potential to support the work of HR professionals and managers who have the necessary skills to work with generative AI, such as ChatGPT, but without underestimating the risks and uncertainties of the results (Chowdhury et al., 2023). The benefits can be manifested in: evaluating the performance of professional tasks (Kalamova, 2023); discovering the need for personalized training (Chen, 2023); providing better support to impact work attitudes (Budhwar et al., 2023).
- Management of supply chains, transport, intelligent manufacturing, e-commerce, etc. (Kumar et al., 2023).

Potential benefits of implementing my algorithm and AI systems in the following sectors:

- Agriculture – artificial intelligence, sensors, drones, and other innovations such as IoT devices and machine learning in traditional agriculture can serve to monitor crops, refine processes, and optimize yields (Shaikh et al., 2022);

- Fashion and clothing – the role of AI is emerging in researching consumer behavior and predicting purchase decisions (Yeo et al., 2022), as well as in the online trade of clothing and fashion accessories, in order to optimize supply chains (Pereira et al., 2022);
- Aerospace industry – opportunities for applying AI to achieve environmental sustainability in the production of aircraft stand out (Dias et al., 2022).

3. Methods

The empirical study was conducted according to the method, which includes the following components:

Restrictive conditions:

- Entrepreneurs, managers, and employees in Bulgarian enterprises of different sizes according to the “number of employees” criterion and developing their main activity in various sectors, according to the general classification of economic activities in “NACE Rev. 2”.
- The study was carried out between February 7 and 12, 2024.
- Due to the short interval and time constraints for surveying, the study was defined as a pilot study.

Purpose:

- The empirical study aims to establish the attitudes of business representatives in Bulgaria towards the application of artificial intelligence, the attitudes towards potential benefits and problems.

Tasks:

- The achievement of the set goal is supported by the implementation of the research tasks: (1) to conduct a survey among business representatives in Bulgaria; (2) summarize the results obtained; and (3) to analyze the results by comparing the answers between representatives of different groups of respondents and verifying the main hypothesis.

Thesis:

- Businesses in Bulgaria know that AI can bring benefits and challenges.

Hypotheses:

- H0: Business organizations in Bulgaria expect AI to simultaneously receive benefits and face problems.
- H1: Business organizations in Bulgaria expect from AI an imbalance between benefits and problems.

Implementation:

- The survey form is web-based. It was distributed by e-mail to members of the Bulgarian Chamber of Commerce, the Bulgarian E-commerce Association, and alumni of the faculty of “Business and Management” of Ruse University “Angel Kan-chev”.

The structure of the questionnaire consists of three sections containing: (1) demographic questions to identify the activity and size of the enterprise according to the criterion “number of employed persons”, the position of the respondent, and the applications used; (2) two sections with questions to establish attitudes towards the potential benefits and problems of AI, presented as

statements regarding the impact on business management, financial management, customer relations, marketing activities, production and development processes, engineering and technology management. The statements from the second and third sections are evaluated on a 5-point scale from 0 to 1. The meaning of the positions in the scale is as follows: 0 – no, 0.25 – probably not; 0.5 – maybe; 0.75 – probably yes; 1 – yes.

The results were processed with the MS Excel toolkit (AVERAGE, MODE.SINGL, STDEV.P, Conditional Formatting, Correlation, t-Test: Paired Two Sample for Means, t-Test: Two-Sample Assuming Unequal Variances).

This is followed by a presentation of the obtained results of the study and an analysis performed by group comparison and hypothesis testing.

4. Findings of the empirical study

The results of the empirical study, conducted according to the above-described methodology, can be divided into several directions: represented business organization (main economic activity, size of the organization according to the number of employees and position held by the respondent); applications and AI used; attitude towards potential benefits and problems of the introduction of AI in business.

The survey was completed by 53 respondents. Their distribution, depending on the size of the employed persons, is in the following subgroups: micro enterprises (up to 9 people) – 21 (40%); small enterprises (from 10 to 49) – 10 (19%), medium enterprises (from 20 to 249) – 17 (32%) and large enterprises (over 250) – 5 (9%). The survey makes no claims of representativeness.

The survey involved: 22 employees (41.5%), 19 managers (35.8%), 11 entrepreneurs (11.8%) and 1 chief specialist (1.9%).

Artificial intelligence is used in 34% of the enterprises included in the survey, it is not applied in 64%, and one of the respondents has no information about it (2%). The data shows that AI is applied in 60% of large enterprises

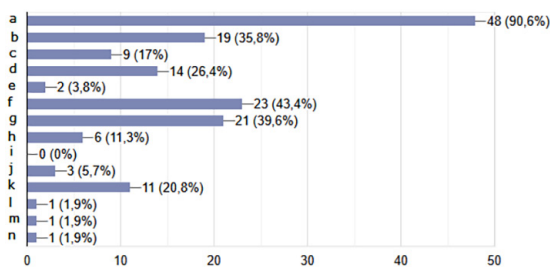


Figure 1. Applications used, where: a – search engine on the Internet, b – machine translation of text/sound from a foreign language, c – digital personal assistant on a smartphone or computer, d – Internet-connected electric vehicles, e – autonomous car, f – online sales/supply, g – online advertising, h – product and supply chain optimization, i – „smart“ agriculture (irrigation, nutrition, weed-ing robots), j – industrial robots, k – electronic security, l-n – others.

(3), 40% of small enterprises (4), 35% of medium enterprises (6) and 24% of micro enterprises (5).

The survey form contains a multiple-choice question that lists 10 applications (search engine on the Internet, machine translation of text/sound from a foreign language, digital personal assistant on a smartphone or computer, Internet-connected electric vehicles, autonomous car, online sales/supply, online advertising, product and supply chain optimization, „smart“ agriculture, industrial robots, electronic security, others). The apps were chosen because they are widespread and widely used, and they already run AI algorithms (Milanova, 2023). The results for the workplace applications are presented in Figure 1. Answers exceed 100% because respondents indicate several options).

The largest part of the respondents 34% (18 people) use three of the listed applications, followed by 23% (12) using two applications, 4% (2) work with seven of the ten applications, and one shares that he does not use any of them and does not add any other.

The questions in the second and third sections contain statements that answer the following basic questions: “To what extent do you agree with the statements/examples of opportunities/benefits of applying AI in business?” and “To what extent do you agree with the examples about problems/challenges/threats of applying AI in business?” (benefits and problems) (Emcra GmbH, n.d.). The questions and statements are presented in Appendix 1 and Appendix 2, respectively, with their codes created for ease of processing and subsequent results analysis.

The calculated mean values of the obtained responses, MODE.SINGL and their standard deviations are presented in Figure 1 and Figure 2, where a Color Scales color legend is used, marking with the blue range the more significant values and with the red range the lower values of the AVERAGE and MODE indicators, respectively, the larger standard deviations SDEV.P.

It can be noted that respondents strongly agree with the statement that AI saves time and money by automating routine processes and tasks (Q 1.3.3). Two other benefits that are accepted by the respondents are related to marketing activities and are expressed in the possibility of AI extracting a huge amount of data to generate quality contacts and increase the customer base (Q 1.4.1) and analyzing the large volumes collected from market and customer data (Q 1.4.2), see Figure 2.

Of note are the concerns of the overwhelming majority of respondents regarding the need for: deep technical knowledge in machine learning and data science when building and maintaining AI systems (Q 2.5.2); upgrading existing software to adapt to a changing business environment (Q 2.6.2); continuous training and retraining of the workforce (Q 2.1.3). Other challenges that emerged with significant consensus are: fear of job losses (Q 2.1.2) and the threat to business management related to difficulties in explaining how decisions were made according to AI algorithms (Q 2.1.4), see Figure 3.

Q	AVERAGE	MODE.SINGL	STDEV.P
1.1.1	0.5755	0.5000	0.2408
1.1.2	0.6321	0.7500	0.2309
1.1.3	0.6415	0.5000	0.2894
1.1.4	0.6085	0.5000	0.2853
1.2.1	0.6226	0.5000	0.2598
1.2.2	0.6462	0.7500	0.2971
1.2.3	0.5660	0.5000	0.2531
1.2.4	0.5896	0.5000	0.2708
1.3.1	0.5991	0.5000	0.2492
1.3.2	0.6321	0.7500	0.2505
1.3.3	0.7877	1.0000	0.2298
1.4.1	0.7217	1.0000	0.2508
1.4.2	0.7311	1.0000	0.2653
1.4.3	0.6274	0.5000	0.2687
1.4.4	0.6934	0.5000	0.2599
1.5.1	0.6179	0.5000	0.2597
1.5.2	0.6840	0.7500	0.2622
1.5.3	0.6827	0.5000	0.2553
1.6.1	0.7067	0.7500	0.2285
1.6.2	0.6923	0.5000	0.2226

Figure 2. Means, modes, and standard deviations of AI benefits

Q	AVERAGE	MODE.SINGL	STDEV.P
2.1.1	0.5425	0.5000	0.2316
2.1.2	0.7170	1.0000	0.2662
2.1.3	0.7264	0.7500	0.2239
2.1.4	0.7028	0.7500	0.2479
2.2.1	0.6226	0.5000	0.2458
2.2.2	0.5943	0.5000	0.2670
2.2.3	0.7028	1.0000	0.2431
2.3.1	0.6321	0.5000	0.2597
2.4.1	0.6923	0.7500	0.1999
2.5.1	0.7028	0.7500	0.2006
2.5.2	0.7547	0.7500	0.1972
2.6.1	0.6132	0.5000	0.2307
2.6.2	0.7356	1.0000	0.2372
2.6.3	0.5660	0.5000	0.2286
2.6.4	0.5529	0.5000	0.2211
2.6.5	0.5673	0.5000	0.2144

Figure 3. AI Threat Means, Modes, and Standard Deviations

5. Discussions

The analysis of the results is aimed at comparing the answers between representatives of different groups of respondents and checking the main hypothesis.

The correlation analysis was performed by comparing the average ratings given by the respondents on the statements regarding the possibilities/benefits of applying AI in business and the problems/challenges/threats of using AI for business purposes. It was searched for the presence of a relationship between the indicators calculated by Excel for average values of the evaluations given by respondents representing micro, small, medium, and large enterprises was sought, comparing two of each group of enterprises, see Figure 4. A positive correlation was observed between the five pairs of matched indicators. The correlation coefficients indicate the greatest similarity of the opinions expressed by

representatives of micro and small businesses. A surprisingly strong similarity of responses is observed for medium and micro enterprises. There is also a strong relationship between the surveyed representatives of small and medium-sized enterprises. Expectedly, the biggest differences are between the opinions of the representatives of large and micro-businesses.

indicator 1	indicator 2	correlation coefficient
AVERAGE <i>micro</i>	AVERAGE <i>small</i>	0.6764
AVERAGE <i>medium</i>	AVERAGE <i>micro</i>	0.6079
AVERAGE <i>small</i>	AVERAGE <i>medium</i>	0.5972
AVERAGE <i>medium</i>	AVERAGE <i>large</i>	0.4765
AVERAGE <i>large</i>	AVERAGE <i>micro</i>	0.0596

Figure 4. Correlation between the average values of the estimates by groups of enterprises depending on the number of employed persons

A t-Test: Two-Sample Assuming Unequal Variance was performed comparing the mean values of the mean scores of all respondents on the statements of the questions about benefits (from Q 1.1.1 to Q 1.6.2) and threats (from Q 2.1.2 to Q 2.6.5).

Table 1. Hypothesis testing by t-Test: Two-Sample Assuming Unequal Variances

	Benefits	Challenges
	Variable 1	Variable 2
Mean	0.6529	0.6516
Variance	0.0033	0.0053
Observations	20	16
Hypothesized Mean Difference	0	
df	28	
t Stat	0.0591	
P (T < = t) one-tail	0.4766	
t Critical one-tail	1.7011	
P (T < = t) two-tail	0.9532	
t Critical two-tail	2.0484	

Hypothesis testing was performed using a t-Test: Paired Two Sample for Means of the average ratings given by the respondents on the two main groups of statements regarding (1) opportunities/benefits of applying AI in business and (2) problems/challenges/threats from the application of AI for business purposes, at the level of significance $\alpha = 0.05$, see Table 1.

Calculations show that the empirical criterion is smaller than the critical one, which makes it necessary to accept H₀, i.e., the assumption is confirmed that business organizations in Bulgaria expect AI to simultaneously receive benefits and face problems.

The thesis that businesses in Bulgaria know that AI can bring benefits and challenges has been confirmed. In other words, there are no clear-cut fears or wildly optimistic expectations from AI.

6. Conclusions

A survey of literary sources focused on the positive and negative impact of AI on business was carried out. The opinion of business representatives in Bulgaria was sought regarding the attitudes towards the application of artificial intelligence, potential benefits, and problems.

It has been argued that the threats described in the target literature include: the lack of human interaction and emotional support of customers; difficulty understanding the nuances of human language when processing large volumes of data; data privacy; significant initial costs of implementing the new technology and training; ethical considerations, damaged image; the danger of biases, errors, biased algorithms, manipulation of human behavior, cyberattacks, creation of false identities from misused personal data, endangering the jobs of qualified personnel, loss of human life and compromising national security.

It is justified that the benefits that business organizations can achieve by applying AI in their activity can be grouped depending on the criteria: (1) possibility of technical and technological integration – the joint work of AI and blockchain can help businesses automate processes, securely share data, generate suggestions for solving problems; (2) functional areas in the business organization – finance and accounting, marketing, human resources management, etc.; (3) economic sectors in which the activity is carried out – agriculture, fashion, aircraft construction.

It has been established empirically, through a pilot study, that the surveyed representatives of various business organizations in Bulgaria see potential benefits from the application of AI, which are related to reducing time and money by automating routine processes and tasks, as well as in marketing customer data mining activities and in analyzing the large volumes of market and customer data collected. AI concerns focus on the need for in-depth technical knowledge, upgrading of available software, continuous training, and retraining of the workforce. There is a balance between fears and positive expectations.

The results obtained, indicating balanced expectations, do not imply an extension of the study to a larger population of respondents. Future research can deepen the analysis by validating some of the results with current job postings in business organizations.

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Contribution

The results of an empirical study, which was conducted by the authors according to a specially developed methodology, were analyzed. It was established that the surveyed business representatives in Bulgaria are clear that AI can lead to both benefits and overcoming challenges, but they do not highlight specific fears or particularly optimistic expectations.

Disclosure statement

Authors declare that have not any competing financial, professional, or personal interests from other parties.

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APPENDIX 1

Section “opportunities/benefits of applying AI in business” – questions and statements

Code	Question / Statement
Q 1.1	AI helps business management by:
Q 1.1.1	It enables faster business decisions based on cognitive technology inputs
Q 1.1.2	It increases expert knowledge through analysis, intelligent advice and support
Q 1.1.3	It analyzes data in a new way
Q 1.1.4	It creates sustainable competitive advantage
Q 1.2	Is AI Making Customer Relationships More Effective?
Q 1.2.1	It predicts customer preferences
Q 1.2.2	It takes personalized offers to customers
Q 1.2.3	It creates positive customer relationships and offers better experiences
Q 1.2.4	It increases customer engagement and satisfaction
Q 1.3	AI helps financial management:
Q 1.3.1	There is potential to increase the profit margin
Q 1.3.2	It improves cost strategies (optimizing business, workforce and products)
Q 1.3.3	It saves time and money by automating routine processes and tasks
Q 1.4	AI improves marketing activities:
Q 1.4.1	It extracts massive amounts of data to generate quality leads and grow your customer base
Q 1.4.2	It analyzes collected large volumes of market and customer data
Q 1.4.3	It increases revenue by identifying and increasing sales opportunities
Q 1.4.4	It increases the effectiveness of marketing campaigns
Q 1.5	AI supports production and development processes.
Q 1.5.1	Increases productivity and operational efficiency
Q 1.5.2	It optimizes production
Q 1.5.3	It achieves better research and development (R&D) efficiency
Q 1.6	AI improves engineering and technology management:
Q 1.6.1	It avoids fallacies and ‘human errors’ provided intelligent systems are set up correctly
Q 1.6.2	It optimizes technical maintenance of equipment

APPENDIX 2

Section “Issues/Challenges/Threats of Applying AI in Business” – Questions and Statements

Code	Question / Statement
Q 2.1	Threats of AI to Business Management:
Q 2.1.1	There is resistance to change
Q 2.1.2	Fear of losing jobs
Q 2.1.3	Need for continuous training and retraining of the workforce
Q 2.1.4	Explaining how decisions are made according to AI algorithms can be challenging
Q 2.2	Dangers of applying AI in customer relations:
Q 2.2.1	Customers refuse to communicate with chatbots and other AI applications
Q 2.2.2	It is difficult to protect personal data
Q 2.2.3	Ambiguity in ethical issues (taking responsibility for mistakes)
Q 2.3	Negative impact on financial management.
Q 2.3.1	Creating and deploying smart technologies can be expensive
Q 2.4	Challenge of AI on marketing activities.
Q 2.4.1	Marketing personnel with very specific AI knowledge and skills are needed
Q 2.5	Challenges of AI in manufacturing and development processes:
Q 2.5.1	Changes are required in manufacturing processes to match AI work.
Q 2.5.2	Building and maintaining AI systems requires deep technical knowledge in machine learning and data science.
Q 2.6	AI creates problems/difficulties with engineering and technology management:
Q 2.6.1	Complexity and need for ongoing maintenance of smart technologies
Q 2.6.2	Upgrade software to adapt to the changing business environment
Q 2.6.3	High risk of losing computer programs or important data
Q 2.6.4	Difficulties in integration of different applications
Q 2.6.5	Lack of understanding of usability and interoperability with other systems and platforms