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## Enhancing small and medium enterprise performance through artificial intelligence integration in accounting

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# ENHANCING SMALL AND MEDIUM ENTERPRISE PERFORMANCE THROUGH ARTIFICIAL INTELLIGENCE INTEGRATION IN ACCOUNTING

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## **Abstract**

This paper examines the degree of implementation of artificial intelligence (AI) tools within accounting information systems in small and medium-sized enterprises (SMEs) in Bosnia and Herzegovina, with the objective of identifying the perceived benefits, key barriers, and their effects on business performance. The research was conducted on a sample of 99 enterprises, utilising a structured questionnaire. Findings reveal that only 21.21% of enterprises currently employ AI tools in their accounting processes, while a mere 20% of respondents make use of advanced document management systems (DMS) or cloud-based solutions—technologies that facilitate integration with AI. The research highlights a generally positive attitude among respondents regarding the impact of AI application on SME operations. The highest average rating was attributed to the statement that AI enhances the efficiency of accounting processes (4.22), followed by improved quality of financial reporting (4.02) and more effective managerial decision-making (3.93), indicating a recognised added value of AI tools in the areas of analytics and decision support. The main obstacles to AI adoption, as identified by respondents, include a lack of knowledge and expertise (3.80) and insufficient regulatory framework (3.73). In terms of financial readiness to invest in AI technologies, 44.40% of enterprises indicated willingness to invest up to approximately EUR 500 annually, 37.40% between EUR 500 and 1,000, and only 18.20% more than EUR 1,000.

Overall, the findings suggest a significant, yet underutilised potential of AI tools in SME accounting, characterised by favourable user perceptions but constrained by educational, financial, and legislative limitations.

**Keywords:** AI tools, accounting digitalisation, business enhancement, small and medium-sized enterprises.

## **INTRODUCTION**

The application of artificial intelligence (AI) in business processes has significantly reshaped the way enterprises operate. In the field of accounting, AI tools enable the automation of routine tasks, enhance the accuracy of financial data, and facilitate more efficient and timely business decision-making. Furthermore, the digital

transformation of tax authorities and efforts to establish real-time transaction monitoring systems—primarily aimed at reducing tax evasion—underscore the need for the adoption of modern digital solutions. Digitalisation is, in fact, a prerequisite for the automation of accounting processes and the integration of AI tools into accounting information systems. However, small and medium-sized enterprises (SMEs) often lag behind, firstly in terms of digital transformation, and subsequently in the adoption of artificial intelligence. Bosnia and Herzegovina, as a transitional economy, faces challenges in the digital transformation of its SME sector. SMEs in Bosnia and Herzegovina are characterised by limited resources, a shortage of qualified personnel, and often inadequate support in terms of infrastructure and legal frameworks. Accordingly, the aim of this paper is to analyse the extent to which AI tools are applied in the accounting practices of SMEs in Bosnia and Herzegovina, and to identify the perceived benefits and obstacles to their implementation. The paper is structured into three main sections. The first section provides an overview of previous research on the advantages and challenges of introducing AI tools in accounting, along with a review of statistical data concerning the level of digital transformation and the use of AI tools by SMEs in the Western Balkans. The second section outlines the research methodology, objectives, and data sources. The third section presents the research findings and offers a discussion of the results.

## LITERATURE REVIEW

Artificial intelligence (AI) significantly enhances business operations by enabling more efficient data management and the improvement of business processes. However, the implementation of AI also brings challenges, including ethical concerns related to data privacy and trust (Stanisic et al., 2024). Moreover, small and medium-sized enterprises (SMEs) often lack the financial and human resources necessary to adequately assess and apply the potential of AI applications for their specific needs (Szedlak et al., 2021). According to the WB DESI 2022 report (p. 10), the adoption of digital technologies by SMEs in the Western Balkans remains substantially below the EU average (35% in the Western Balkans compared to the EU average of 55%). On average, only 7% of businesses in the Western Balkans used big data, 16% utilised cloud technologies, and merely 3% adopted AI in 2021. In comparison, these figures in the EU were 14%, 34%, and 8%, respectively. The same report also states that in 2021, 32% of SMEs in Bosnia and Herzegovina had at least a basic level of digital intensity, closely aligning with the Western Balkans average of 35%. Electronic information exchange was used by 26% of enterprises, which is slightly above the regional average of 24%. Social media platforms were not widely utilised by businesses in Bosnia and Herzegovina, significantly falling below the regional average. Advanced technologies were modestly employed: 7% of businesses used cloud solutions, 4% big data, and only 2% AI. Electronic invoicing was used by 19% of enterprises, a higher rate than the regional average. Regarding the use of information and communication technologies (ICT) for environmental sustainability, 54% of enterprises in Bosnia and Herzegovina employed ICT for environmental protection purposes, compared to the Western Balkans average of 56% (WB DESI, 2022, p. 26).

Research by Rawashdeha, Bakhitb, and Abaalkhailb (2022) identified four key technological factors—compatibility, challenge readiness, efficiency improvement, and time saving—as significant in influencing the adoption of AI by SMEs through the automation of accounting processes. Accounting automation not only facilitates AI adoption but also independently increases interest in the technology. A firm's readiness to embrace new technologies and the alignment of AI with existing business practices are essential prerequisites for successful implementation. Furthermore, time savings and improved efficiency have a direct impact on the decision to adopt AI, suggesting that automation is not the sole determinant. AI simplifies processes, accelerates decision-making, and improves the accuracy of financial reporting (Panwar, 2023). According to research by Okeke, Bakare, and Achumie (2024), AI-based accounting tools are revolutionising routine tasks such as bookkeeping, invoicing, and cost tracking. By automating these functions, SMEs can reduce human errors, save time, and allocate resources more efficiently. This automation enhances efficiency, accuracy, and competitiveness while reducing staff workload (Khashimov & Khaydarova, 2022). AI systems are also capable of analysing large datasets to detect anomalies and patterns in financial data, thereby improving decision-making and financial sustainability (García-Vera, Juca-Maldonado & Torres-Gallegos, 2023). Iyelolu, Agu, Idemudia, and Ijomah (2024) highlight that AI technologies can substantially enhance operational efficiency, product development, customer engagement, and competitive advantage for SMEs.

## **RESEARCH OBJECTIVES, SAMPLE, AND DATA SOURCES**

The subject of this research is the examination of the extent to which artificial intelligence (AI) tools are applied in the accounting practices of small and medium-sized enterprises (SMEs), users' perceptions of their usefulness, obstacles encountered during implementation, and the analysis of the impact that AI integration has not only on the efficiency and quality of accounting processes but also on the overall business performance. The study sets out the following operational research objectives:

- To determine the level of application of AI tools in accounting
- To assess users' perceptions of the contribution of AI tools to SME accounting
- To identify barriers to the implementation of AI tools in accounting
- To analyse the impact of AI tools on the overall business performance of SMEs

The research population consisted of managers and accountants working in SMEs in Bosnia and Herzegovina. Data were collected through an online survey. The questionnaire included a combination of Likert scale questions, closed-ended questions with multiple-choice answers, and open-ended questions designed to provide qualitative insights. The questionnaire was distributed to 550 email addresses, and 99 responses were collected, resulting in a response rate of 18%. The data were analysed using descriptive statistics, correlation analysis, and regression analysis. To provide a better understanding of the research results, the key characteristics of the sample are first presented. Among the surveyed enterprises, 55.55% had been

operating for more than 10 years; 17.17% had been in operation between 5 and 10 years; and 27.28% had been operating for up to 5 years. In terms of sectoral distribution, 66.67% of enterprises operate in the service sector, 15.15% in manufacturing, and 18.18% in trade. The structure of respondents was as follows: 36.36% accountants, 28.28% managers, and 35.36% employees working in accounting and finance departments.

## **RESEARCH FINDINGS AND DISCUSSION**

In order to comprehensively explore the role of artificial intelligence in SME accounting practices, this chapter outlines the key operational objectives that guide the research. These objectives aim to provide structured insight into the extent, perception, challenges, and effects of AI tool implementation in the accounting function.

### **THE EXTENT OF APPLICATION OF AI TOOLS IN ACCOUNTING**

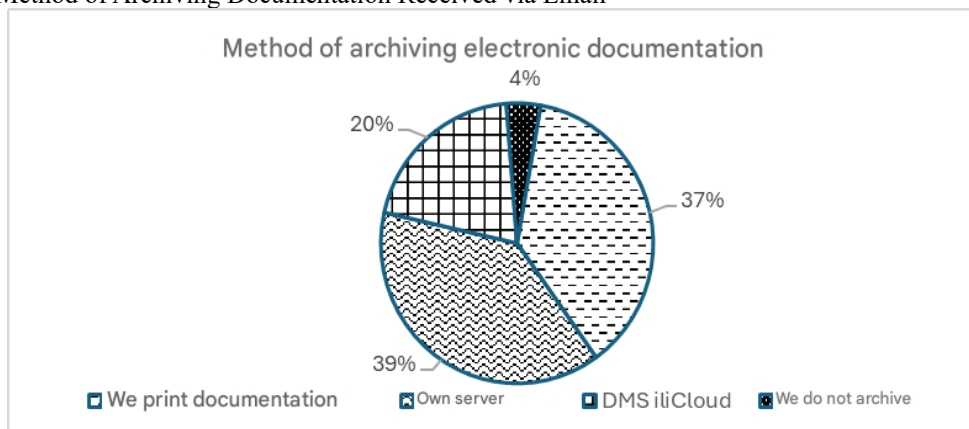
When it comes to the use of artificial intelligence (AI) tools—such as those for text, image, and code generation (e.g. ChatGPT, Microsoft Copilot, Google Gemini), developer and data analysis tools (e.g. GitHub Copilot, DataRobot), accounting and finance tools (e.g. UiPath, Xero), and predictive analytics platforms (e.g. Power BI, Salesforce)—the findings indicate that 55.56% of respondents make use of at least one such tool, whereas 44.44% do not. However, the situation appears even less favourable with respect to the application of AI tools specifically in accounting. In response to the question of whether the enterprise uses AI in accounting processes—such as optical document recognition, automatic posting, predictive analytics in accounting, or chatbot support—only 21.21% of participants confirmed usage, while 78.79% reported no application of these tools. Nevertheless, 16.16% of enterprises indicated plans to introduce AI in their accounting functions, and 13.13% stated that they currently lack sufficient knowledge on the topic. The remaining respondents were undecided.

In order to assess the prerequisites for the introduction of AI in accounting, a series of questions was posed to explore the current degree of digitalisation and automation in accounting processes. One of the key inquiries related to the format in which documentation is most frequently received. Results show that in 73.74% of cases, documents are received in paper format, as PDFs or images, while only 26.26% are received in structured digital formats such as Excel, XML, or CSV. These results provide insight into the potential for the adoption of AI in accounting. AI tools in accounting tend to operate most efficiently when working with structured digital data (e.g. Excel, XML, CSV). In contrast, paper documents, PDFs, and image files require additional conversion processes to become machine-readable. Such processes, including Optical Character Recognition (OCR), can be slow, less accurate, and place additional burdens on the system. It may therefore be concluded that enterprises need to undergo both technical and organisational transformation in order to effectively integrate AI tools into the accounting function.

Beyond the format in which documents are received, another important dimension of digital readiness concerns the manner in which electronic documents are archived. Efficient archiving and data accessibility are essential foundations for automation and the use of advanced technologies such as AI software. To this end, the study also examined how enterprises manage the archiving of documents received via email. Responses to this question can serve as indicators of the presence—or absence—of structured digital document management systems (such as DMS or cloud-based solutions). The distribution of responses is presented in Image 1.

**Image 1.**

Method of Archiving Documentation Received via Email



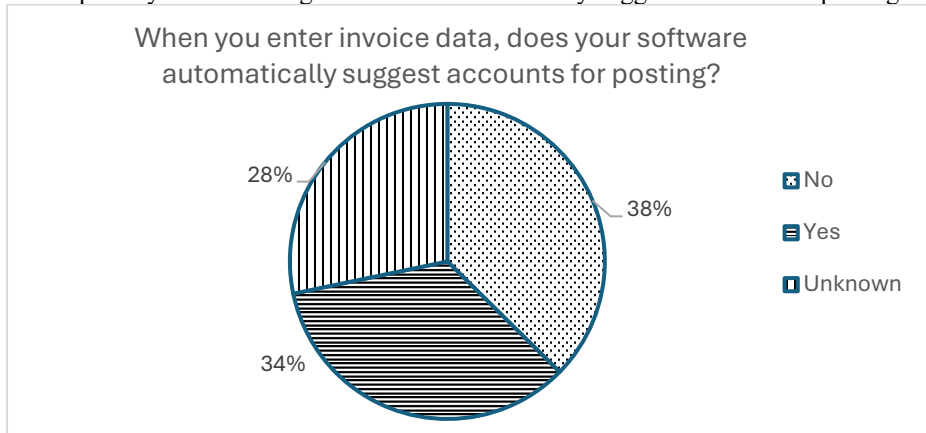
Source: Author's own analysis

The results indicate that a significant proportion of enterprises rely on basic document archiving methods, such as physical storage (37% plus 4% of those awaiting document receipt by post) and storage directly within email accounts or on local drives (39%). These practices hinder systematic data processing and retrieval. Conversely, only 20% of respondents utilise advanced document management systems (DMS) or cloud-based solutions, which facilitate better integration with AI tools. This situation highlights the need to improve digital infrastructure to enable full automation of accounting processes.

To assess the automation of business transaction recording, we investigated whether the accounting software used by firms automatically suggests accounts for posting. The results are presented in Image 2.

**Image 2.**

The capability of accounting software to automatically suggest accounts for posting



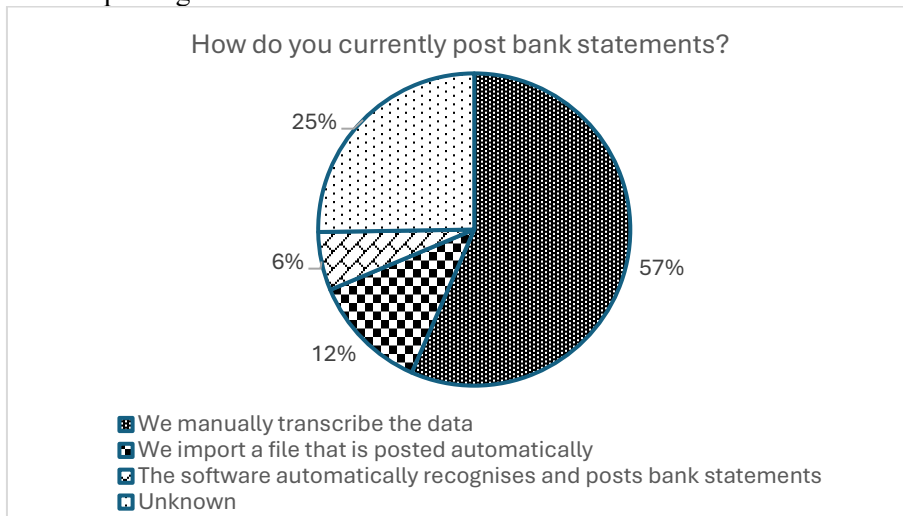
Source: Author's own analysis

Automatic suggestion of accounts for posting forms the foundation for faster and more accurate processing of accounting documentation. This reduces the possibility of human error and processing time, while enabling employees to focus on analytical and control tasks.

With the same purpose of assessing the automation of accounting records, we also investigated the method of posting bank statements. The results are presented in Image 3.

**Image 3.**

Methods of posting bank statements



Source: Author's own analysis

The majority of respondents (57%) manually transcribe data from bank statements, while only 12% utilise the option to import files that are automatically posted. An

even smaller proportion, 6%, report that their software recognises and posts bank statements automatically, whereas 25% of respondents are either unsure or unfamiliar with the posting method. These findings indicate a high degree of manual data entry in a critical segment of the accounting process, suggesting that businesses still lack the adequate technical prerequisites for the implementation of AI tools in accounting procedures. Regarding the digital maturity of accounting—i.e., the extent to which digital technologies and AI are integrated into accounting processes—23.2% of respondents consider themselves to be in the initial phase (processes are predominantly manual and lack standardisation), 39.4% regard themselves as being in the second phase—digitally aware (recognition of the need for digitalisation and basic initiatives have been launched), 27.3% view themselves as being in the third phase—digitally active (digital tools introduced, partial automation), 8.1% identify with the fourth phase—digitally advanced (integrated systems and analytics, high efficiency), and only 2% consider themselves in the fifth phase—innovative (use of AI, predictive analytics, with strategic impact). It can be concluded that the current state reflects a low level of digitalisation and automation within accounting processes, which constitutes a significant barrier to the effective utilisation of AI technologies. However, the expressed intention of some businesses to adopt AI tools, alongside existing basic forms of digitalisation, indicates potential for future development. To increase the adoption of AI tools, a comprehensive technical, organisational, and educational transformation within enterprises is essential.

## CONTRIBUTION OF AI TOOLS IN ACCOUNTING

The evaluation of respondents' views on the contribution that AI technology can bring to accounting is presented in Table 1. The research results indicate that respondents recognise the positive potential of AI tools in improving accounting processes. The highest average ratings were awarded to the areas of automation of postings (3.77) and cost analysis (3.73), suggesting that these are perceived as the most suitable fields for the application of artificial intelligence.

**Table 1.**

Respondents' Views on the Contribution of AI Tools in Accounting by Specific Segments

DESCRIPTION	AVERAGE	STDEV
Automation of postings	3,77	1,25
Preparation of accounting reports	3,65	1,21
Cost analysis	3,73	1,18
Management of receivables and payables	3,63	1,19
Cash flow forecasting	3,45	1,21
Error detection	3,62	1,17

*Source:* Author's own analysis

Respondents' views highlight the recognised value of AI technology in accounting, particularly in automation and analytical tasks. Conversely, there remains scope for

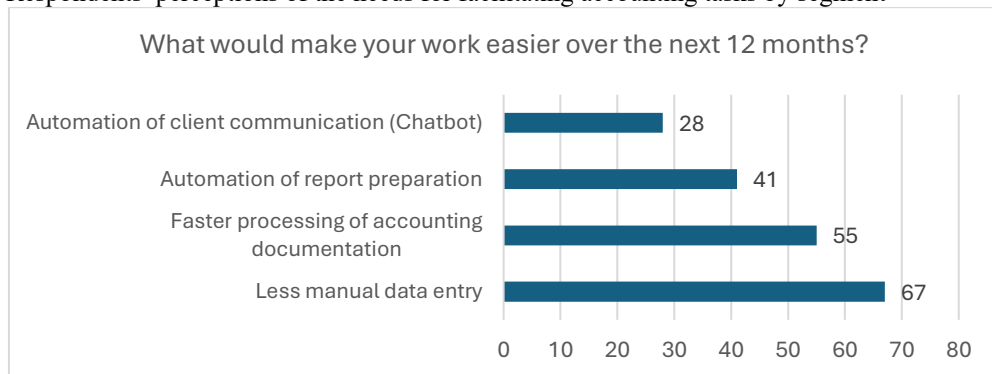


further awareness-raising and education regarding more advanced functionalities such as prediction and anomaly detection.

The assessment of respondents' opinions on what would facilitate their work over the next 12 months (in the short-term future) is presented in Image 4.

**Image 4.**

Respondents' perceptions of the needs for facilitating accounting tasks by segment



Source: Author's own analysis

The research results indicate that respondents perceive the greatest potential for improving their work through the reduction of manual data entry in accounting. No fewer than 67 respondents identified reduced manual input as the key factor that would most facilitate their daily tasks over the next twelve months. This is further complemented by the desire for faster processing of accounting documentation, specifically through the automation of posting entries. Respondents' answers clearly highlight the need to enhance efficiency by automating fundamental accounting processes, particularly those involving manual data entry and processing. When asked whether they consider it important to have an AI tool in accounting that independently recognises and processes documents, 47.5% replied affirmatively, 48.5% considered it partially important, and 4% stated it was not important. Conversely, when questioned whether the transition to automatic posting would reduce their control over data, 26.3% responded affirmatively, 31.3% said no, and 42.4% were uncertain. These findings suggest a cautious attitude among respondents, underscoring the need for further education and demonstration of the security and transparency of AI tools in order to overcome concerns related to potential loss of data control.

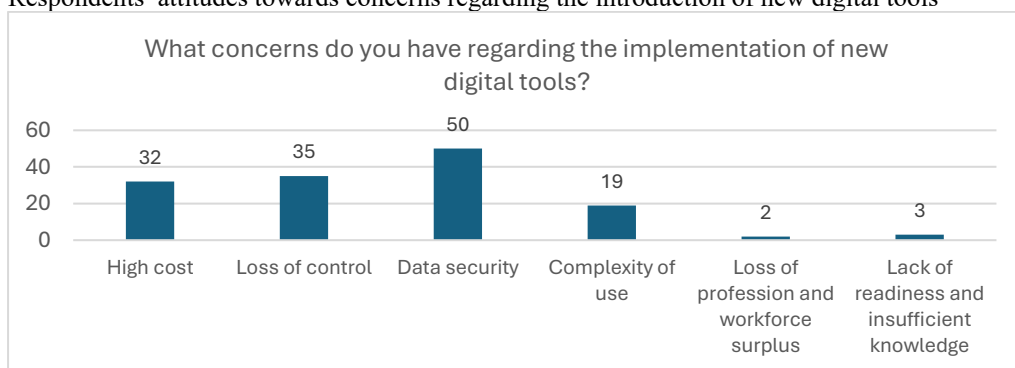
In conclusion, the majority of respondents recognise the significant potential of artificial intelligence application in accounting, particularly in the areas of posting automation and cost analysis. The results also reveal a strong demand for reducing manual data entry and accelerating document processing, thereby confirming a readiness to embrace automation of basic accounting tasks. However, there remains a degree of caution among respondents regarding full automation, largely due to concerns over loss of control of data. This highlights the necessity for comprehensive education on the capabilities, security, and benefits of AI tools in accounting processes, alongside awareness of associated risks such as security vulnerabilities and technological dependency.

## BARRIERS TO THE IMPLEMENTATION OF AI TOOLS IN ACCOUNTING

The results of the survey regarding respondents' concerns about the general adoption of digital tools in their work are presented in Image 5. Most respondents express apprehension about the security of confidential financial and personal data when using digital tools. This highlights the need for enhanced cybersecurity measures, encryption, and clear data protection protocols. Additionally, respondents fear that automation could lead to reduced control over processes and key accounting decisions. This aligns with the widely recognised risk associated with “black box” AI systems. Furthermore, the costs related to the acquisition and implementation of new technologies represent a significant barrier for many companies, particularly small and medium-sized enterprises. These costs encompass not only the software itself but also training, customisation, and ongoing maintenance of such systems.

### Image 5.

Respondents' attitudes towards concerns regarding the introduction of new digital tools



Source: Author's own analysis

The smallest number of respondents expressed concern about the future of jobs in the profession, which may indicate that the majority believe in the transformation of work tasks rather than the replacement of accountants.

Respondents' views on the barriers to the implementation of AI tools in accounting are presented in Table 2.

**Table 2.**

Respondents' views on the barriers to the implementation of AI tools in accounting

DESCRIPTION	AVERAGE	STDEV
Lack of knowledge and expertise	3,80	1,14
High implementation costs	3,70	1,16
Lack of cost-effectiveness	2,50	1,18
Lack of trust in technology	3,09	1,26
Lack of legal regulation	3,73	1,24

Source: Author's own analysis

The research results indicate that the greatest barriers to the adoption and use of AI tools in accounting are the lack of knowledge and expertise (average rating 3.80) and the absence of legal regulation (3.73). Although there is awareness of the benefits of AI technologies, implementation is hindered by limited user competencies and the lack of a clear legal framework governing their application in accounting. Therefore, a systematic approach involving staff training, subsidising technology adoption, and establishing regulatory standards could significantly reduce these barriers and accelerate the digital transformation of the accounting function in small and medium-sized enterprises.

When asked about their annual willingness to invest in advanced digital tools to support the accounting function, 44.4% of respondents indicated up to 1,000 BAM (approximately 500 EUR), 37.4% between 1,000 and 2,000 BAM (roughly 500 to 1,000 EUR), and 18.2% over 2,000 BAM (above 1,000 EUR).

In conclusion, the research points to several obstacles slowing the broader adoption of AI technologies in the accounting departments of small and medium enterprises. Key challenges identified include a lack of knowledge and expertise, high implementation costs, and the absence of clear legal frameworks. These barriers primarily affect SMEs, which often face budgetary and human resource constraints. Successful AI implementation in accounting requires a combination of education, regulatory support, and financial incentives to mitigate risks and strengthen organisational readiness for digital transition.

## THE IMPACT OF AI TOOLS APPLICATION IN ACCOUNTING ON THE OPERATIONS OF SMEs

The respondents' views on the impact of applying AI tools in accounting on the operations of small and medium-sized enterprises in Bosnia and Herzegovina are presented in Table 3.

**Table 3.**

Respondents' opinions on the impact of AI tools application in accounting on business operations

DESCRIPTION	AVERAGE	STDEV
Increases the efficiency of accounting processes	4,22	1,00
Reduces the costs of the accounting function	3,91	1,08
Improves the quality of financial reporting	4,02	1,01
Contributes to more efficient managerial decision-making	3,93	0,96
Positively impacts the financial performance	3,58	1,19

*Source:* Author's own analysis

The research results indicate a positive attitude among respondents regarding the impact of AI tools on the operations of small and medium-sized enterprises. The highest average rating was given to the statement that AI increases the efficiency of accounting processes (4.22). Similarly, high scores were awarded to the assertions that AI contributes to improving the quality of financial reporting (4.02) and to more

efficient managerial decision-making (3.93), implying that respondents recognise the added value of AI tools not only in analytics but also in decision support. A favourable view was also expressed regarding the reduction of accounting function costs (3.91), albeit with slightly less certainty compared to other statements. The lowest rating was given to the claim that AI positively impacts financial performance (3.58), which may suggest that users currently lack sufficient empirical insight into specific financial benefits or that such benefits are more difficult to quantify directly.

In conclusion, respondents acknowledge the strategic importance of AI tools in accounting as drivers of operational efficiency, reporting quality, and managerial decision support.

## **CONCLUSION**

The objective of this study was to examine the current level of AI tool utilisation in accounting, attitudes towards the benefits and barriers to its implementation, and the perceived impact of its application on the enhancement of business operations within small and medium-sized enterprises (SMEs) in Bosnia and Herzegovina. The research findings indicate that the adoption of AI tools in the accounting functions of SMEs remains relatively low. Although more than half of the respondents reported using some form of artificial intelligence-based tools, their use specifically within accounting is considerably more limited. Only 21.21% of enterprises employ AI tools in their accounting processes. An analysis of the existing digital infrastructure further confirms the limited readiness for broader integration of AI technologies into accounting information systems. The majority of enterprises continue to rely on paper-based or unstructured documentation (such as PDFs and images), archive data in physical form or on local drives, and utilise software that lacks advanced features like automated posting. Such circumstances hinder the implementation of AI solutions, which require a high degree of digitalisation and the availability of structured data.

The results demonstrate that respondents are aware of the potential contribution of AI technologies in accounting, particularly in automating routine tasks, cost analysis, and report preparation. Respondents anticipate that the use of AI tools will reduce manual data entry and facilitate automated posting. Among the barriers impeding AI adoption in accounting, the most prominent include a lack of knowledge and expertise, insufficient legal regulation, the need for additional technological investment, and concerns over loss of process control. Despite the currently low level of AI adoption in accounting, clear signals of acceptance of emerging trends are evident. Successful implementation of AI in accounting necessitates a combination of education, regulatory support, and financial incentives to mitigate the identified risks and strengthen organisational readiness for digital transformation. According to respondents' opinions, AI tools significantly contribute to the efficiency of accounting processes, the quality of financial reporting, and managerial decision-making within SMEs.

The conducted study presents several important limitations, primarily the relatively small sample size, the reliance on subjective assessments by respondents, and the exclusion of potential spatial variations.

Based on the findings and observed limitations, it is recommended that future research employ the Technology Acceptance Model (TAM) or its extended version, the Unified Theory of Acceptance and Use of Technology (UTAUT), as theoretical frameworks to gain deeper insight into the factors influencing the acceptance and utilisation of AI tools in accounting within small and medium-sized enterprises.

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# UNAPREĐENJE POSLOVANJA MALIH I SREDNJIH PREDUZEĆA KROZ INTEGRACIJU VJEŠTAČKE INTELIGENCIJE U RAČUNOVODSTVO

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## Apstrakt

Rad analizira stepen primjene alata vještačke inteligencije (AI) u računovodstvenim informacionim sistemima malih i srednjih preduzeća (MSP) u Bosni i Hercegovini, sa ciljem identifikacije koristi, prepreka i efekata na poslovne performanse. Istraživanje je sprovedeno na uzorku od 99 preduzeća, korištenjem anketnog upitnika. Rezultati pokazuju da svega 21,21% preduzeća trenutno koristi AI alate u računovodstvenim procesima, dok samo 20% ispitanika koristi napredne sisteme za upravljanje dokumentima (DMS) ili cloud rješenja. Rezultati istraživanja ukazuju na pozitivan stav ispitanika prema utjecaju primjene AI alata na poslovanje malih i srednjih preduzeća. Najvišu prosječnu ocjenu dobila je tvrdnja da AI povećava efikasnost računovodstvenih procesa (4,22). Također, visoke ocjene su dodijeljene tvrdnjama da AI doprinosi poboljšanju kvaliteta finansijskog izvještavanja (4,02) i efikasnijem menadžerskom odlučivanju (3,93), što implicira da ispitanici prepoznaju dodanu vrijednost AI alata i u sferi analitike i podrške donošenju odluka. Kao glavne prepreke uvođenju AI tehnologija, ispitanici su istakli nedostatak znanja i stručnosti (3,80) te nedostatak zakonske regulative (3,73). Spremnost za ulaganje u AI tehnologije pokazuje ograničeni kapacitet MSP-a: 44,40% ispitanika spremno je godišnje uložiti do cca 500 EUR, 37,40% između 500 i 1000 EUR, dok je svega 18,20% spremno investirati više od 1000 EUR. Ipak, generalna percepcija koristi uvođenja AI u računovodstvo na poslovanje preduzeća je pozitivna.

Dobijeni rezultati ukazuju na značajan, ali još uvijek nedovoljno iskorišten potencijal AI alata u računovodstvu MSP-a, pri čemu postoje jasni pokazatelji pozitivnog stava korisnika, ali i potrebe za većim nivoom obrazovanja, finansijske i regulatorne podrške za njegovu primjenu u računovodstvu.

**Ključne riječi: AI alati, digitalizacija u računovodstvu, unapređenje poslovanja, mala i srednja preduzeća.**