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THE USE OF ARTIFICIAL INTELLIGENCE BY YOUNG ENTREPRENEURS IN THE REPUBLIC OF CROATIA

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ABSTRACT

This article examines the growing significance of artificial intelligence (AI) in the entrepreneurial ventures of young entrepreneurs in the Republic of Croatia. Through surveys and interviews with young entrepreneurs from various economic sectors, the study identifies the most frequently used AI tools and assesses their impact on business success. The findings indicate that while AI has the potential to revolutionize business processes, enhance decision-making, and improve efficiency, its adoption among young entrepreneurs is still inconsistent. Many entrepreneurs hesitate to fully integrate AI due to challenges such as high costs, lack of technical expertise, and ethical concerns. Despite these barriers, those who do use AI often apply it to tasks like content creation, social media management, and financial reporting, highlighting AI's ability to streamline operations. However, the current level of AI adoption among young entrepreneurs remains insufficient to drive a major shift toward digital entrepreneurship. To fully unlock AI's potential, the article suggests that targeted educational initiatives and resources tailored to young entrepreneurs are crucial. These efforts could bridge the knowledge gap and reduce perceived risks associated with AI. The article concludes by emphasizing that while AI offers significant opportunities for enhancing business capabilities, overcoming existing obstacles is essential. By addressing these challenges and fostering a supportive environment, there is substantial potential to drive innovation and success in the entrepreneurial sector. Future research should continue to explore AI adoption dynamics and broader implications, ensuring that young entrepreneurs are prepared to thrive in an increasingly digital world.

KEY WORDS

artificial Intelligence, AI, young entrepreneurs, AI tools, Croatia

CLASSIFICATION

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INTRODUCTION

In today's dynamic business environment, artificial intelligence (AI) is becoming an increasingly important tool for young entrepreneurs who want to improve their business processes, increase efficiency, and achieve a competitive advantage. This article explores using artificial intelligence tools among young entrepreneurs, focusing on their choices, experiences, and challenges. AI is expected to positively impact young entrepreneurs, improving opportunity recognition, decision-making, performance, education, and research while bringing challenges such as potentially damaging social and economic implications for traditional small businesses. AI is increasingly recognized as a transformative tool in entrepreneurship, especially for young entrepreneurs. Integrating AI into entrepreneurial activities will improve various aspects of the entrepreneurial process, from identifying opportunities to optimizing decision-making and business results. AI platforms enable young entrepreneurs to improve digital skills, organize finances, and recognize different types of intelligence, thus creating a stimulating digital environment. Also, it is expected that AI algorithms can offer new solutions to face challenges in entrepreneurial environments, improving creativity and judgment. Considering that research on the application of artificial intelligence among young entrepreneurs is a relatively new field, it is expected that further research will single out several vital works and authors that will contribute to the development of this field.

The research was initiated due to the increasing use of AI in business, emphasizing young entrepreneurs in Croatia. While AI offers opportunities to improve efficiency and innovation, its adoption among young people is uneven due to high costs, lack of technical expertise, and ethical dilemmas. The innovativeness of the research lies in the specific focus on regional entrepreneurs and the tools most often used in their business processes, providing insight into opportunities and challenges in integrating AI. The research's purpose is to analyze the use of AI among young entrepreneurs and determine how these tools contribute to business success. Objectives include identifying the most commonly used AI tools, analyzing barriers to their implementation, and proposing educational initiatives and policies. These are crucial for promoting the wider application of AI and are key outcomes of this research. This study significantly contributes to a better understanding of AI's role in Croatia's digital entrepreneurship development. The research included a survey and interviews with young entrepreneurs from various economic sectors in the Republic of Croatia to gain insight into which UI tools they use most often and how these tools contribute to their business success. The research results reveal trends in the application of artificial intelligence among young entrepreneurs, as well as specific tools that have proven to be the most useful in their business. In the continuation of the work, the most frequently used tools will be presented and analysed in detail. The goal of this article is to provide a deeper understanding of artificial intelligence's role in young people's entrepreneurial initiatives and to encourage the further application of these technologies to improve business results.

It is assumed that AI algorithms can offer new solutions to solve challenges in the business environment, improving creativity and judgment. Research into the application of artificial intelligence among young entrepreneurs is a relatively new field, and it is necessary to highlight several of the most important papers and authors.

Giuggioli and Pellegrini [1] claims in the research that artificial intelligence positively affects entrepreneurs through opportunities, decision-making, and the effect of education and research. Adnan [2] argue that an AI-powered online platform helps future digital entrepreneurs improve their digital skills, streamline their finances, and recognize multiple intelligences. After conducting research, Chalmers, MacKenzie and Carter [3] stated that AI can improve entrepreneurial activities. However, it can also have negative social and economic implications, especially for traditional small companies threatened by disintermediation. Obschonka and

Audretsch [4] prove that artificial intelligence and big data can contribute to the productive transformation of youth entrepreneurship research and real-world phenomena such as "smart entrepreneurship". Townsend and Hunt [5] say in the paper that AI algorithms provide new solutions for solving the challenge of modal uncertainty in the entrepreneurial decision environment, creating new possibilities for future forms of entrepreneurial action.

Taking into account the research carried out by the European Union, according to the published research results (Eurostat, accessed August 17, 2024) [6], in 2023, 8% of EU companies with ten or more employees used AI technology to run their business. The application of artificial intelligence refers to systems that use technologies such as text mining, computer vision, speech recognition, natural language generation, machine learning, and deep learning to collect and use various data to make predictions, recommendations, or decisions – with levels of autonomy – the best actions to achieve specific goals. Denmark (15,2 %), Finland (15,1 %), and Luxembourg (14,4 %) had the largest share of companies with ten or more employees using AI technologies. The most minor shares are recorded in Romania (1,5 %), Bulgaria (3,6 %), Poland (3,7 %) and Hungary (3,7 %). The following graph shows companies with over ten employees using AI technologies in the European Union in 2023.

The Global Entrepreneurship Monitor [7], a pioneering research initiative founded in 1999, is the largest and most comprehensive of its kind. It tracks entrepreneurial activities, aspirations, and attitudes of individuals in different countries. One of its key contributions is the use of the category' young entrepreneurs' for individuals aged 18 to 34 in its research and reports on entrepreneurship. This category, while flexible in academic research, often spans the 18-35 age group, covering the various stages of entry and establishment in the business world. The European Agricultural Fund for Rural Development, for instance, defines youth as all those under 40. Given these varying perspectives on the age limit for young people and the unique characteristics of young entrepreneurs in the Republic of Croatia, the authors made a deliberate decision to focus their research on young entrepreneurs up to 40 years of age.

The article is structured so that after a short summary, it begins with an introduction, where the importance of AI in entrepreneurship is explained, especially among young entrepreneurs, and the challenges they face are highlighted. The research methodology follows a detailed description of the research methods used, the sample of respondents, and the data collection process. The article's core is analysing the results, where data from surveys and interviews are presented. This section explores the most commonly used AI tools, their advantages, and their application challenges, providing a comprehensive understanding of their role in entrepreneurship. The article concludes with a summary of key findings, recommendations for future research, and suggestions for encouraging the broader application of AI among young entrepreneurs. A list of literature, which includes the sources used in the research, is provided at the end.

ARTIFICIAL INTELLIGENCE APPLICATIONS USED BY YOUNG ENTREPRENEURS

AI represents one of the most significant technologies shaping the modern world, including entrepreneurship. While AI has existed in large companies for many years, young entrepreneurs increasingly recognize its potential for creating innovations, increasing efficiency, and improving business. This chapter investigates to what extent young entrepreneurs in the Republic of Croatia use artificial intelligence tools and which tools they are. Artificial intelligence encompasses a wide range of technologies that enable machines to "learn", "think", and "act" in a way that mimics human intelligence. These include machine learning, natural language processing, computer vision, and other advanced methods. In business, AI automates processes, analyses large amounts of data, predicts market trends, and personalizes customer experiences [8]. For young entrepreneurs with limited resources, AI can

provide a competitive advantage by enabling faster and more efficient decision-making. Young entrepreneurs, often characterized as tech-savvy and innovative, naturally gravitate toward AI for several key reasons (adapted by the author according to [9]):

- AI enables business scalability, which is especially important for startups aiming for rapid growth.
- Young entrepreneurs tend to experiment and embrace new technologies, making them ideal candidates for pioneering AI applications.
- Digital transformation and the growth of the digital economy require AI to remain competitive in the market.
- Young entrepreneurs recognize AI as a tool for solving global challenges, such as climate change, through smarter and more sustainable business models.

AI enables the automation of routine tasks, which is crucial for small teams with limited resources. Young entrepreneurs use AI to automate administrative tasks, manage inventory, optimize marketing campaigns, and manage customer support via chatbots [9]. For example, chatbots, guided by natural language processing algorithms, can quickly and efficiently respond to user inquiries, saving time and increasing customer satisfaction. One of the most prominent applications of AI in business is personalizing the customer experience. Young entrepreneurs use AI to analyse user data and adapt offers, recommendations, and marketing messages to the specific needs and interests of users. This strategy is particularly effective in e-commerce, where personalization can significantly increase conversion rates and customer loyalty. Startups often implement AI systems that learn from user behaviour and predict their future needs, thus creating a deeper connection between the brand and the customer [3]. AI enables young entrepreneurs to make informed decisions by analysing large amounts of data. Instead of relying on intuition or limited information, AI tools can process complex data sets and identify patterns and trends that would otherwise go unnoticed. This approach is used in finance, marketing, demand forecasting, and risk management.

AI also plays a crucial role in product and service innovation. Young entrepreneurs use AI to develop innovative, adaptable products better suited to market needs. AI enables young entrepreneurs to optimize marketing campaigns through data analysis and automatic message adjustment. AI systems can segment the market, target specific demographics, and tailor content based on user behaviour. Also, AI can help identify the most effective channels and time frames for advertising, resulting in higher conversion rates and lower advertising costs. While AI offers significant benefits, its adoption can be expensive, especially for young entrepreneurs with limited budgets. The costs of developing, adapting, and maintaining an AI system can be significant, and the return on investment is only sometimes immediately visible. Implementing AI technologies requires specific technical knowledge that many young entrepreneurs may need to gain. Finding qualified experts to develop and implement AI solutions can be challenging, especially in the early stages of a business. AI raises ethical issues, especially when collecting and processing personal data. Young entrepreneurs must navigate complex legal and ethical requirements to ensure that their AI solves problems.

EMPIRICAL RESEARCH

In order to obtain as relevant data as possible, research was conducted in the form of surveys and interviews, and the research methodology, sample, and research results are explained in more detail further in the text.

METHODOLOGY AND SAMPLE

The research was conducted over two months in May and June 2024. The research used a structured quantitative method (e-mail questionnaire) and a descriptive unstructured qualitative

method. To obtain relevant data for processing, the authors, in cooperation with the students, reached the contacts of 500 young entrepreneurs from the area where the authors and students are from (Istria, Primorje-Gorski Kotar, Ličko-Senjska, Zadarska, and Šibenik) -Knin County) so that the students should detect about twenty young entrepreneurs in their immediate environment. Out of 500 survey questionnaires, 80 were sent to young entrepreneurs in Istria County, 80 in Primorje-Gorski Kotar, 40 in Lika-Senj, 220 in Zadar, and 80 in Šibenik-Knin County. A total of 312 responses were received: 58 from Istria, 46 from Primorje-Gorski Kotar, 25 from Lika-Senj, 133 from Zadar, and 50 from Šibenik-Knin County.

The questionnaire consisted of 18 questions, 15 of which were of a more straightforward type. These questions included whether they had encountered artificial intelligence tools, which tools, how they got information about them, and how often they used them. The other three questions were more complex, and respondents were asked to state their biggest problems and challenges in business and whether they knew which artificial intelligence tools could help them in this.

Individual interviews followed the survey, the aim of which was to collect qualitative data about the experiences of young entrepreneurs with artificial intelligence tools, the difficulties they encountered when using them, and their suggestions related to the use of artificial intelligence tools by young entrepreneurs. 15 interviews were conducted in Istria County, 13 in Primorje-Gorski Kotar, 8 in Ličko-Senj, 48 in Zadar, and 16 in Šibenik-Knin – 100 interviews.

Table 1. Sent and received questionnaires and conducted interviews.

County	Questionnaire sent	Questionnaire Received	%	Conducted interviews
Istria county	80	58	73	15
Primorje-Gorski Kotar county	80	46	58	13
Lika-Senj county	40	25	63	8
Zadar county	220	133	60	48
Šibenik-Knin county	80	50	63	16
Total	**500**	**312**	**62**	**100**

Additional research was conducted using the Google search engine and the ChatGPT tool on the most frequently used artificial intelligence tools among young entrepreneurs in the European Union. The results of that research served as the basis for examining young entrepreneurs in the Republic of Croatia.

The results of this comprehensive research are detailed further in the text.

RESEARCH RESULTS

Based on the search of available information, the authors determined that the following artificial intelligence tools are most often used in young entrepreneurs' business within the European Union [10].

ChatGPT by OpenAI

It automates customer support, generates content, and assists in marketing. It is widely used for crafting engaging marketing messages and automating routine tasks.

Jasper

An AI-driven virtual assistant that helps with content creation, from blog posts to social media captions and even email marketing. It simplifies administrative tasks and boosts productivity.

HubSpot's ChatSpot.ai

An AI-integrated CRM system that helps entrepreneurs with customer relationship management, marketing and sales automation, and data analytics. HubSpot is very popular because of its adaptability and wide range of tools that make business easier.

Grammarly

A grammar and writing style checker that uses artificial intelligence to help entrepreneurs write accurate and stylistically correct texts. Grammarly is practical for everyday business communication and content creation.

Frase.io

An AI-powered tool for content optimization, improving SEO, and generating content briefs that help businesses rank higher in search engines.

Fireflies.ai

Transcribes meetings takes notes, and organizes action items, making it easier for teams to keep track of discussions and follow up on tasks.

Lavender.ai

Optimizes digital marketing campaigns by analyzing customer data and suggesting personalized strategies to improve engagement and ROI.

ThoughtSpot Sage

An AI-powered analytics platform that provides business insights by allowing users to ask questions in natural language and receive instant, actionable insights.

Tableau with AI integration

Visualizes complex data, allowing businesses to make data-driven decisions. The integration of AI enhances its predictive analytics capabilities.

Salesforce Einstein

An AI tool that helps businesses analyze customer data, predict behavior, and automate tasks within Salesforce's CRM platform.

These tools are popular among young entrepreneurs in the European Union because they offer significant time-saving benefits, improve decision-making through data insights, and enhance customer engagement through personalization and automation. These tools reflect the growing importance of AI in entrepreneurship across Europe, offering solutions that range from data analytics and customer interaction to content creation and marketing optimization. Entrepreneurs are increasingly adopting these technologies to stay competitive and foster business innovation. The following graph shows the use of artificial intelligence tools by young entrepreneurs in the Republic of Croatia on selected respondents.

Figure 1 shows that almost two-thirds of respondents do not use artificial intelligence tools in their business. Only 14 % regularly use them, 11 % occasionally, and 13 % have only tried them but do not use them often. The data processing of the analysed questionnaires resulted in findings on whether the respondents have used the most popular artificial intelligence tools in their business so far, as illustrated in Figure 2.

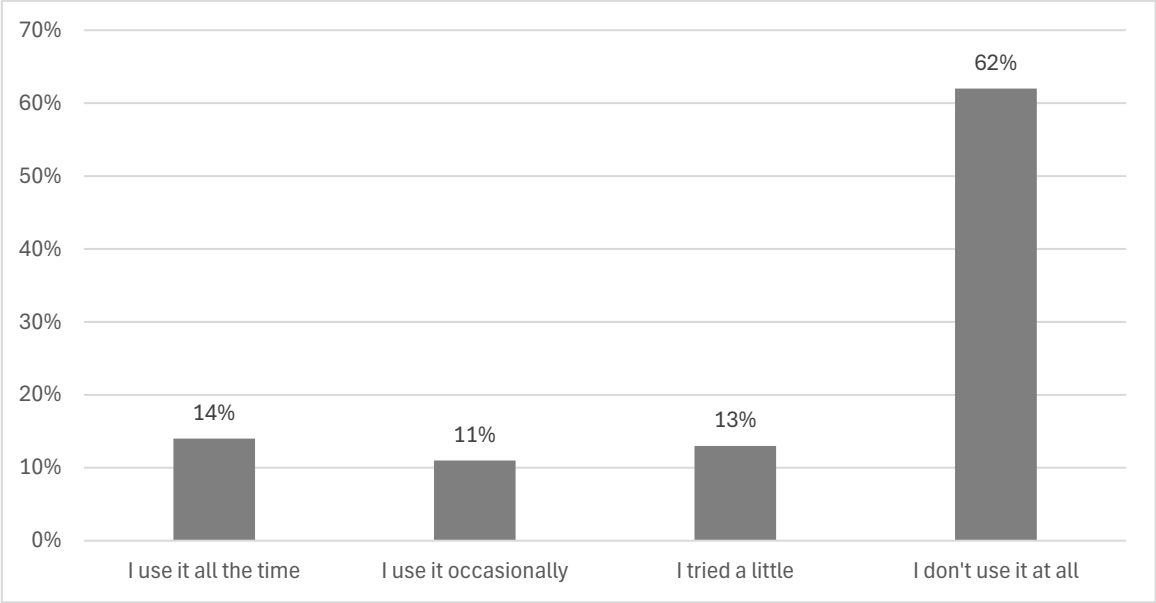

Figure 1. Use of artificial intelligence tools by young entrepreneurs.

Figure 2 shows that over twenty percent of young entrepreneurs had experience using the ChatGpt tool, and over ten percent used the Grammarly application. Tableau with AI Integration and the Salesforce Eistein application were the least used. A robust questionnaire was employed to gather the responses of young entrepreneurs who utilized AI tools, ensuring the reliability of the data. Figure 3 shows the respondents' answers regarding the purpose of using AI in the case when they use an artificial intelligence tool.

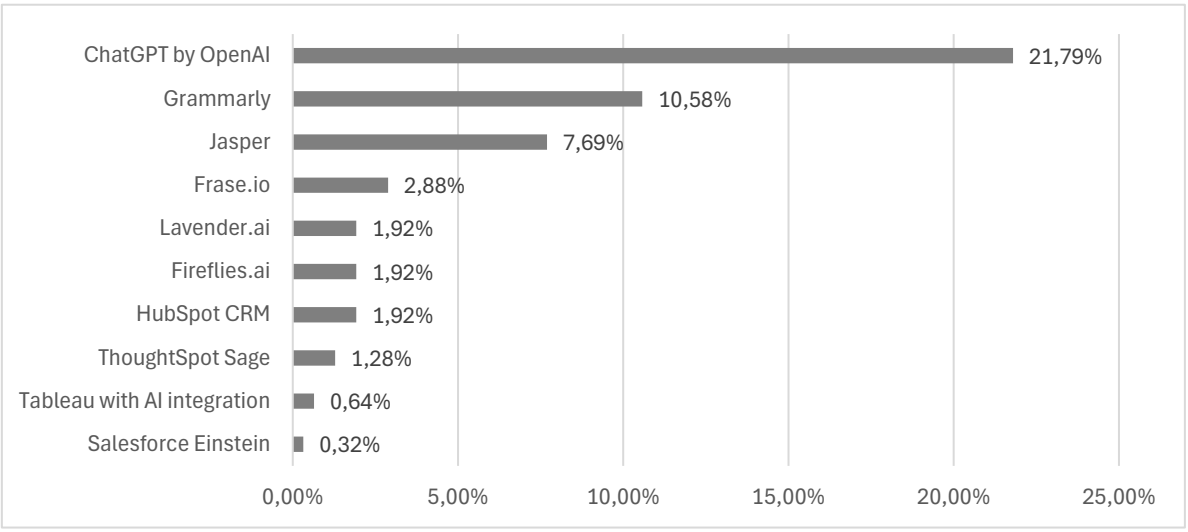

Figure 2. Percentage of use of artificial intelligence tools by young entrepreneurs, Croatia, 2024.

The research showed that young entrepreneurs who use artificial intelligence tools use them most for writing texts and planning trips, then for publishing various announcements on social networks and for writing financial reports, and least for shortening and reshaping text and preparing for interviews.

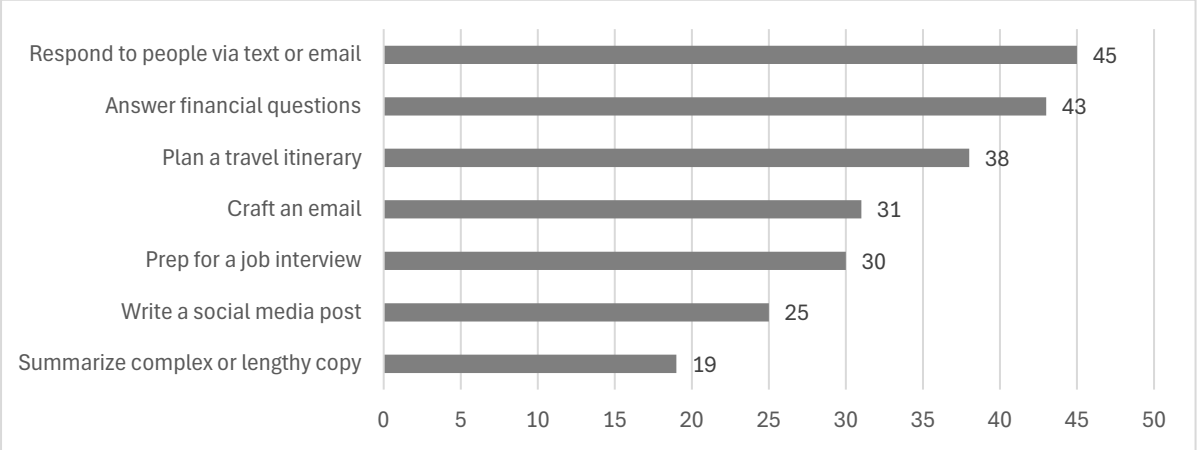

Figure 3. The purpose of using artificial intelligence tools among young entrepreneurs.

The interviews were conducted during May and June 2024. In cooperation with students, the author organized and conducted interviews with the target group of respondents. Each interview lasted between 45 and 60 minutes and was held in an unstructured format without transcribing data. For the analysis of the collected data, the method of content analysis was used, which includes classifying data according to terms with the aim of quantifying the data in such a way as to count the expressions and concepts that appear more than once.

Based on the data collected in the interviews about the experiences of young entrepreneurs with artificial intelligence, it is evident that their experiences are varied and often limited. While some young entrepreneurs recognize the immense potential of AI tools, especially in improving efficiency, automating tasks and saving resources, a large number of them are still not fully aware of the possibilities these tools provide. Respondents point out that the advantages of artificial intelligence are most visible in data analysis and marketing strategies, but many face numerous problems when trying to integrate them into everyday business.

Among the main problems that young entrepreneurs point out are the need for more specific knowledge about using AI technologies and the perception that these tools are complex, financially demanding, and require advanced technical skills. In addition, the lack of technical support and specialized education contributes to the problematic adoption of AI solutions. Many young entrepreneurs also point out that small businesses often need more resources to implement AI in business processes effectively.

Proposals of young entrepreneurs in relation to solving these problems include the urgent need for more accessible educational programs. These programs would be focused on the practical application of artificial intelligence in different sectors. Also, the need for the establishment of mentoring networks and technical support is emphasized in order to facilitate access to artificial intelligence tools for young entrepreneurs and to encourage wider acceptance of these technologies in order to achieve long-term business development.

DISCUSSION, CONCLUSION AND SUGGESTIONS

The research highlights the growing role of AI in the entrepreneurial endeavors of young entrepreneurs in Croatia. While the results demonstrate that some young entrepreneurs have successfully integrated AI tools into their business operations, the adoption rate still needs to improve. The main reasons for this include high implementation costs, a lack of technical expertise, and concerns over the ethical implications of AI. This aligns with findings in previous literature, such as those of Giuggioli and Pellegrini [1], who also noted similar barriers in AI adoption among entrepreneurs globally, particularly regarding resource limitations and knowledge gaps. One notable trend in the research is the preference for AI tools that assist with

routine tasks, such as content creation, financial reporting, and social media management. This mirrors the findings by Adnan [2], who identified similar usage patterns in other studies of digital entrepreneurs. However, it is interesting that more advanced AI applications, such as machine learning for business forecasting, should be utilized more. This may suggest that young entrepreneurs are still in the early stages of fully exploring AI's potential, a point also made by Obschonka and Audretsch [4].

From the author's perspective, AI has the transformative potential to revolutionize small and medium enterprises in Croatia, provided the right resources and support are in place. However, the reluctance to embrace AI due to technical and financial concerns underscores the need for robust educational programs and mentorship opportunities tailored to young entrepreneurs. These initiatives could effectively bridge the knowledge gap and mitigate the perceived risks of AI, thereby fostering wider adoption in the long run.

In conclusion, while AI offers significant opportunities for enhancing efficiency and competitiveness, its full potential among young entrepreneurs in Croatia remains largely untapped. This untapped potential should inspire and motivate young entrepreneurs to explore and adopt AI in their businesses. Future research could explore the development of specific educational programs and mentorship initiatives aimed at increasing AI literacy among young entrepreneurs, addressing both technical and ethical concerns. Additionally, studies could focus on identifying government incentives and policy frameworks that can lower the financial barriers to AI adoption, fostering wider integration of advanced AI technologies in business operations.

The research findings are crucial for further reflection on the potential use of artificial intelligence among young entrepreneurs. The fact that AI is still largely unknown to many young entrepreneurs, despite its recognition as a time-saving tool even among schoolchildren, is concerning. This gap in awareness is urgent and needs to be addressed to avoid hindering technological progress. However, for those already using AI, the ways in which they apply it offer a promising avenue for engaging more Croatian businesses. Since small business size is not a barrier to AI adoption, unlike other technologies, this presents an opportunity for faster technological integration. Moreover, this article could serve as a valuable resource for the young entrepreneur population in Croatia, motivating them to increasingly leverage available AI tools. By doing so, they can accelerate their long-term development and compete more effectively in both local and global markets.

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