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A Case Study on the Impact of Artificial Intelligence in Small and Medium Enterprises

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Abstract: *The integration of Artificial Intelligence (AI) is reshaping industries, becoming a vital tool for businesses to drive transformation and enhance performance. This study focuses on understanding the relationship between AI implementation and start-up business performance, using Chopwork as a case study. Start-ups, striving to establish themselves in a competitive landscape, must understand how AI influences critical performance metrics to ensure growth and sustainability. By examining AI adoption, this research aims to identify the pathways through which AI can shape start-up trajectories, offering insights for strategic decision- making.*

Additionally, AI's impact extends to Small and Medium Enterprises (SMEs), enhancing operational efficiency, fostering innovation, and increasing competitiveness. Through a combination of quantitative and qualitative analyses, including surveys, interviews, and case studies, the study assesses the drivers and barriers of AI adoption. It also explores AI's effects on workforce dynamics, skill requirements, decision-making, resource allocation, and customer engagement. Real-world applications provide practical insights into optimizing SME operations, while ethical concerns like data privacy and algorithmic biases are addressed. This research offers a comprehensive perspective, aiding policymakers, business leaders, and researchers in understanding AI's opportunities and challenges for SMEs, ultimately supporting the development of effective, technology-driven strategies.

Keywords: AI Adoption in SMEs, Operational Efficiency, Innovation Capabilities, Competitiveness, Quantitative and Qualitative Analyses, Workforce Dynamics

I. INTRODUCTION

"SME" stands for Small and Medium-sized Enterprises. SMEs are businesses that are characterized by their relatively small size in terms of employees, revenue, and assets compared to larger corporations. The specific criteria for what qualify as an SME can vary from one country to another, and even within different industries, but they generally fall into a range below the thresholds of large enterprises. The classification of SMEs often considers factors such as the number of employees, annual revenue, or total assets. The exact thresholds used to define SMEs can differ from one country or region to another. In many cases, they are classified as follows: Micro-enterprises: These are the smallest of SMEs, typically with a very limited number of employees, low annual revenue, and minimal assets. Small enterprises: Small businesses have more employees and generate higher revenue than microenterprises but are still considerably smaller than large corporations. Medium-sized enterprises: These are larger than small enterprises but smaller than large corporations, with a higher number of employees, greater revenue, and more substantial assets compared to small enterprises. SMEs play a vital role in the global economy, as they often represent a significant portion of businesses and job opportunities. They can be found in various sectors, including manufacturing, retail, services, technology, and more. SMEs are known for their flexibility, innovation, and ability to adapt quickly to changing market conditions. They can benefit from technology, including AI, to enhance their operations, competitiveness, and growth. Many SMEs have adapted to digital transformation, remote work, and e-commerce to survive and thrive. Access to finance remains a challenge, and government support programs continue to be essential. Supply chain disruptions and fluctuating demand can impact SMEs. Resilience and adaptability remain key for SMEs in navigating uncertain economic conditions and seizing opportunities presented by technology and changing consumer behaviours.

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II. LITERATURE REVIEW

According to Wang (2022), a researcher from China, investigates the influence of financial technology on the funding accessibility of small and micro enterprises (SMEs), which are crucial to the country's economic landscape. These enterprises frequently encounter challenges in securing affordable credit. Fintech, particularly through unsecured lending options, emerges as a potential solution. With the integration of advanced technologies such as 5G, artificial intelligence (AI), and the Internet of Things (IoT), these financial services are expected to become more efficient and accessible. Wang emphasizes the need for comprehensive data collection, ecosystem development, and industry-specific machine learning models to maximize the benefits of fintech. However, a notable limitation of the study is the lack of empirical evidence and model-based validation, pointing to the necessity for future research rooted in data analysis and model formulation. In a separate study, Kumar (2022) explores both the advantages and hurdles that SMEs encounter while adopting AI technologies. His research underlines the importance of continuous learning and upskilling for employees and organizations to stay competitive in an evolving technological environment. While AI can enhance business performance, various implementation barriers are identified. Nonetheless, Kumar notes that tailored AI solutions can significantly improve operational outcomes in different industries.

Lemos (2022), highlights the organizational transformation challenges SMEs face when adopting AI tools. Her study introduces a constructivist multi-criteria decision-making approach, employing methods like cognitive mapping and DEMATEL within a neutrosophic framework. The research identifies five critical dimensions influencing AI adoption: human capital, technological infrastructure, technical expertise, internal policies, and leadership. Although the study's findings are limited by its context and expert sample homogeneity, it offers a structured approach to identifying core adoption factors and opens avenues for further exploration.

Objectives

1. To explore how AI can contribute to reducing business risks in SMEs.
2. To assess the current rate of AI adoption within SMEs.
3. To investigate the role and impact of AI on SME performance.
4. To identify and analyze challenges and obstacles in the AI adoption process.
5. To examine the economic advantages and cost-related aspects of AI integration in SME operations.

III. METHODOLOGY

This research adopts a qualitative approach to explore the influence of artificial intelligence on the performance metrics of Micro, Small, and Medium Enterprises (MSMEs). A descriptive research design is used, relying primarily on secondary sources including peer-reviewed journals, working papers from reputable institutions, official government documents, and insights gathered from industry interactions. The study evaluates the relationship between AI implementation and key performance indicators such as revenue growth, profit margins, operational efficiency, customer satisfaction, innovation, time-to-market, and workforce productivity. A correlation matrix is used to identify and interpret patterns among these variables. The research framework is supported by a comprehensive review of existing literature from diverse and credible academic and industry sources.

Challenges faced by MSME's

One of the significant challenges confronting Micro, Small, and Medium Enterprises (MSMEs) is the lack of strategic planning. This limitation can be addressed by leveraging data analytics to monitor and interpret market dynamics, consumer behavior, and competitor actions. By doing so, MSMEs can uncover strategic opportunities that may not be immediately obvious and make informed decisions. Furthermore, continuous tracking of key performance indicators allows businesses to adapt their strategies as needed, ensuring sustained growth and competitiveness.

Another persistent issue within the MSME sector is the effective management of human resources. This challenge can be mitigated through the automation of routine HR processes such as payroll administration, attendance tracking, and employee benefits management. Automating these functions not only reduces administrative workload but also enables HR personnel to concentrate on strategic initiatives like talent development and workforce planning. Additionally, AI-

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driven tools can enhance employee experience by offering personalized performance feedback, tailored growth opportunities, and reward systems, thereby improving engagement, productivity, and staff retention. Advanced AI applications also support critical HR functions, including recruitment, performance evaluation, and succession planning.

Cash flow management remains another critical area where MSMEs often face difficulties. Artificial Intelligence can significantly enhance forecasting accuracy by incorporating diverse variables such as historical financial data, seasonal fluctuations, and customer purchasing patterns. Moreover, AI systems can strengthen credit management by evaluating the creditworthiness of clients, identifying potential defaulters, and tracking overdue payments.

This predictive capability enables MSMEs to proactively address liquidity issues and implement corrective measures in a timely manner. Through the integration of AI in these key operational areas—strategic planning, human resource management, and financial forecasting—MSMEs can overcome longstanding challenges and build more resilient, data-driven business models.

Role of AI on the growth of MSMEs

AI will enhance efficiency by automating tasks, streamlining operations, and improving decision-making. It will automate routine processes, analyse large datasets for insights, and enable predictive maintenance, reducing downtime. AI-driven tools optimize resource allocation, enhance customer interactions, and provide valuable data-driven insights, empowering MSMEs to operate more effectively, competitively, and adapt to evolving market demands. AI will reduce costs by freeing up employees to focus on more strategic work and improve productivity. This will help to gain insights from the company's data. This information can be used to make better decisions about product development, marketing, and sales. With the help of AI-powered chatbots and virtual assistants AI can answer customer questions and resolve issues quickly and efficiently, even when human customer service representatives are not available. AI can also help to personalize the customer experience. AI can help to automate customer service tasks such as order processing, shipping tracking, and returns processing. AI can be used to optimize energy consumption in buildings and industrial processes, leading to reduced greenhouse gas emissions and cost savings. AI can also be used to reduce waste in the MSME sector by optimizing production processes and improving supply chain management and can also be used to develop new sustainable products and services.

Data Collection

The data used in this study is derived from existing research and empirical studies that explore the relationships between AI implementation and startup business performance metrics.

Table 1 Integration of digital technology in AI.

Author(s)	Year	Research topic	Methodology	Focus country(ies)
Baierl and Nitzsche	2021	Researching recommendations for action for the successful implementation of AI in German SMEs	Expert interviews	Germany
Szedlak *et al.*	2021	Researching the perceived risks and benefits of AI for SMEs	Online survey	Germany (only northern Rhineland-Palatinate)
Tikkanen *et al.*	2022	Researching the AI phenomenon and how it affects regional, Finnish SMEs	Literature review and guided interviews	Finland
RPA Team Project Manager	2025	AI Implementation in operational process	Personal Interview	Anza

The adoption of AI in SMEs has recently attracted considerable attention in academic circles, as evidenced by several studies covering different geographical and sectoral contexts (see Table 1). A consolidated assessment of these studies

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to date highlights interrelated issues and already identified opportunities and challenges, shedding light on the multifaceted relationship between AI and SMEs. Foremost among the potential benefits of AI in SMEs is its role in new product development and service enhancement. Szedlak et al. (2021) and Tikkanen et al. (2022) both emphasize AI's transformative capability in bolstering product portfolios and augmenting service offerings. This aligns with a broader narrative of technology-driven innovation where AI emerges as a key facilitator. Another consistent observation relates to operational efficiency.

However, this promising landscape is not devoid of challenges. An overarching concern reiterated across studies is the pronounced knowledge and expertise deficit among SMEs, as illustrated by findings from Szedlak et al. (2021). Resource constraints, encapsulating both financial impediments and high operational costs, emerge as another formidable barrier, as observed across multiple studies (e.g., Tikkanen et al., 2022; Szedlak et al., 2021).

As per our research study, we had a conference meeting to the company's Project Manager by using the Interview Methodology-

Interview Methodology Overview

Participant- Manager Of the Robotic Process Automation(RPA) Team
Organization- Anza
Location- Pune
Format- Conducted Virtually
Objective- To investigate the influence of Artificial Intelligence (AI), particularly RPA, on the operational effectiveness and service delivery in a small-to-medium enterprise like Anza.

Interview Questions and Sample Responses

1. Could you describe your responsibilities as the RPA Team Manager at Anza? Response:
In my role, I lead the automation strategy by identifying and implementing RPA solutions within our core business areas, particularly in conveyancing operations. I manage the lifecycle of RPA bots—from planning and development to deployment—ensuring they align with our business objectives and compliance standards.

2. When did Anza begin integrating automation technologies like RPA, and what triggered this initiative?
Response:
Our journey with RPA began around 2018. We noticed a significant amount of manual effort going into repetitive tasks such as document processing and data entry. To boost efficiency and minimize errors, our leadership decided to explore automation.

3. What specific processes have been automated using AI or RPA at your organization? Response:
We have automated several routine processes, including:
• Extracting data from legal documents.
• Auto-filling forms and performing data validation.
• Sending client and team updates.
• Verifying client names and addresses via APIs.
• Recording post-completion data into our systems.

4. What initial obstacles did your team face when adopting RPA? Response:
Some of the key challenges were:
• Change management issues and staff reluctance.
• Lack of internal RPA expertise in the beginning.
• Difficulty in integrating bots with older systems.
• Variations in document formats received from UK-based firms.

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5. What improvements have you noticed after incorporating AI into your workflows? Response:
The introduction of AI has led to:
• Approximately 40% faster task completion.
• Fewer manual errors.
• The ability to scale operations without increasing headcount.
• Reallocation of employee efforts toward higher-value client interactions.

6. Has AI implementation had any impact on employment within your firm?
Response: Yes, but in a constructive way. While some manual roles have been redefined, we've reskilled staff to take on roles that involve bot supervision, process optimization, and data analysis.

7. In what ways has AI improved collaboration with international clients, especially those in the UK?
Response:
AI has allowed us to offer more consistent support across time zones. Our bots handle tasks overnight, generate reports quickly, and reduce turnaround times, all of which are vital for our UK-based clients.

8. How do you assess the return on investment (ROI) from your AI-based projects? Response:
We measure ROI through several indicators:
• Time savings on a per-task basis.
• Lower error rates in outputs.
• Reduced operational costs.
• Enhanced client experience and satisfaction.

9. Are there future plans to extend AI use beyond the current RPA implementations? Response:
Definitely. We're currently looking into Natural Language Processing (NLP) to help interpret legal documents, and exploring Machine Learning to predict workflow delays or anomalies before they occur.

10. What guidance would you offer to SMEs looking to adopt AI or RPA technologies? Response:
Start with automating clearly defined, repetitive tasks. Gain a deep understanding of your processes first. Importantly, keep your team involved and offer adequate training to ensure they adapt smoothly to the new technology.

IV. RESULT AND DISCUSSION

This interview offered significant insight into how a mid-sized enterprise like Anza has embraced AI-driven automation to refine internal operations and maintain a competitive edge in the legal services outsourcing industry. Their forward-thinking mindset and ability to adapt make them a valuable case study for other SMEs considering digital transformation.

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