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ARTIFICIAL INTELLIGENCE ACCEPTANCE AND IMPLEMENTATION IN MICROENTERPRISES: A CONCEPTUAL FRAMEWORK AND EVIDENCE FROM A PILOT STUDY

Łukasz MAŁYS

Poznań University of Economics and Business; lukasz.malys@ue.poznan.pl, ORCID: 0000-0003-3078-1170

Purpose: This paper proposes and preliminarily validates a process model for the acceptance and implementation of Artificial Intelligence (AI) in microenterprises. It addresses the research gap concerning how small firms, often constrained by limited resources and managerial capacity, adopt AI. The study aims to identify the stages and conditions necessary for effective and sustainable AI integration in microenterprise contexts.
Design/methodology/approach: A conceptual model of AI acceptance and implementation was developed based on a literature review, comprising seven stages: awareness and education, top management support, readiness assessment, strategy formulation, pilot testing and feedback, employee training and engagement, and continuous evaluation. To verify the model's conceptual validity, a quantitative pilot study was conducted in July 2025 among n = 10 white-collar employees from microenterprises in advertising, transport, tourism, and legal services. Data were collected using an online questionnaire with both Likert-scale and non-Likert questions.
Findings: Results indicate that AI adoption in microenterprises remains at an early stage. Mean scores (1.8-3.4) reveal moderate awareness but low managerial support, limited readiness, and an absence of strategic direction. Although all respondents reported using AI tools – mainly ChatGPT and other freely available applications – usage was individual and experimental rather than organisation-driven. The first two stages of the process (awareness and management support) were largely unfulfilled, constraining subsequent implementation phases.
Research limitations/implications: The pilot's small, non-random sample limits generalisability. Future research should involve larger, cross-sector samples and include qualitative methods to explore managerial aspects of AI adoption in greater depth.
Practical implications: The proposed process model serves as a diagnostic framework to guide microenterprise managers in prioritising early-stage interventions – particularly in developing awareness and managerial engagement – to ensure strategic and coordinated AI adoption.
Originality/value: This study offers one of the first empirically grounded models of AI acceptance and implementation tailored to microenterprises. It contributes to the literature on digital transformation by highlighting stage-specific challenges and underscoring the pivotal role of managerial awareness and leadership in fostering effective, sustainable AI integration.
Keywords: artificial intelligence, microenterprises, process of acceptance and implementation, pilot study.
Category of the paper: Research paper.

1. Introduction

Artificial Intelligence (AI) is broadly defined as the capability of machines to replicate intelligent human behaviour. It encompasses a spectrum of technologies designed to enable systems to perform tasks that typically require human intelligence, including learning, reasoning, problem-solving, and adaptation through experience. More specifically, AI focuses on developing algorithms and models that allow machines to process data intelligently, make autonomous decisions, and operate effectively in complex environments (Lee et al., 2019; Aji, Kumar, 2024). As technological development has accelerated, AI applications have evolved from theoretical concepts into practical tools that profoundly transform business operations across sectors.

In recent years, the integration of AI into business processes has led to significant improvements in operational efficiency and strategic innovation. Many organisations have embedded AI into their business models, with surveys suggesting that approximately 75% of companies are aligning their strategies to leverage AI capabilities (Lu, Li, 2024). AI supports automation, predictive analytics, personalised customer engagement, and enhanced decision-making processes, thereby allowing firms to streamline operations, reduce costs, and improve service quality (Aji, Kumar, 2024; Tula et al., 2024). For example, AI in e-commerce enables businesses to analyse customer preferences and behaviours, facilitating more targeted marketing strategies and enhanced customer experiences (Lari et al., 2022; Aji, Kumar, 2024).

Beyond operational gains, AI also serves as a catalyst for innovation and collaboration. It allows organisations to address challenges such as labour shortages by automating repetitive tasks and analysing large data sets without continuous human oversight (Zafar, 2024). This shift enables human workers to concentrate on higher-order tasks requiring creativity and strategic thinking. Furthermore, effective AI utilisation can reshape competitive dynamics, providing firms that integrate these technologies successfully with a distinct advantage (Alsheibani et al., 2020).

However, AI adoption introduces a range of technical, ethical, and organisational challenges. Businesses must address issues such as data privacy, algorithmic bias, and potential workforce displacement (Farayola et al., 2023; Enholm et al., 2021). Developing frameworks for responsible AI use is therefore essential to balance technological potential with ethical responsibility. Integrating human judgement alongside AI technologies can help ensure that implementation enhances decision quality while maintaining transparency and fairness (Jöhnk et al., 2020; Farayola et al., 2023). As AI becomes a cornerstone of strategic management, companies must carefully assess their readiness to adopt and integrate such systems (Jöhnk et al., 2020; Takeuchi, 2022).

The study of AI adoption in microenterprises is of particular importance. These entities represent vital drivers of economic development, especially in emerging economies, where they contribute significantly to employment and income generation. Nevertheless, microenterprises often face structural challenges, including limited access to technology and financial constraints (Ortiz-Medina, Guzmán, 2020; Singh, 2021). Integrating AI and other advanced information and communication technologies (ICTs) into their operations can enhance productivity and competitiveness, stimulate innovation, and improve responsiveness to market demands (Estébanez et al., 2022; Dávalos, 2023). Empirical evidence suggests that AI may assist microenterprises in automating tasks, managing customer relations, and optimising inventory processes (Shahid et al., 2024; Alva, 2019).

However, a significant empirical gap remains concerning how AI is adopted and implemented within this group. More research is required to understand how AI can help microenterprises overcome resource limitations and skill shortages (Liyanage et al., 2023; Dávalos, 2023). Understanding these dynamics is essential for designing supportive policies and promoting sustainable growth (Angeles et al., 2019; Inga-Ávila et al., 2023; Joni et al., 2024).

The aim of this paper is to propose and preliminarily validate a process model for the acceptance and implementation of AI in microenterprises.

The paper is structured as follows. First, the potential functional areas of management in microenterprises where AI can be applied are discussed. Second, the proposed stages of the AI acceptance and implementation process are presented, grounded in the literature review. Finally, the methodology and results of a pilot study designed to test the conceptual validity of the proposed process are reported, followed by concluding remarks.

Although numerous studies have examined AI adoption in large enterprises, research focusing on microenterprises remains scarce. This paper addresses this gap by developing and empirically testing a process model for AI acceptance and implementation specifically tailored to the characteristics and constraints of microenterprises.

To strengthen the theoretical foundation of the proposed process, the present study draws conceptually on the Technology-Organization-Environment (TOE) framework and complementary insights from technology acceptance theories such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). The TOE framework (Tornatzky, Fleischer, 1990) explains organisational adoption of innovations through the interplay of technological, organisational, and environmental factors, providing a comprehensive basis for analysing how microenterprises respond to emerging technologies such as AI. Within this broader context, TAM (Davis, 1989) and UTAUT (Venkatesh et al., 2003) contribute a behavioural perspective, emphasising the cognitive mechanisms – such as perceived usefulness, ease of use, and social influence – that shape managerial and employee acceptance. Integrating these perspectives enables a multidimensional understanding of AI adoption, linking structural and contextual

determinants with individual-level attitudes and behavioural intentions. This theoretical combination aligns with the staged model proposed in this paper, which captures both organisational readiness and cognitive acceptance as key drivers of successful AI implementation in microenterprises.

Building on this theoretical foundation, the following section outlines the key functional areas of management in which AI can be applied within microenterprises, providing the contextual basis for the subsequent process model of AI acceptance and implementation.

2. AI utilisation in functional areas of management in microenterprises

Artificial Intelligence (AI) is transforming the operational framework of microenterprises across multiple functional areas of management. Its implementation enables these firms to enhance efficiency, strengthen competitiveness, and foster innovation. Existing studies identifies several functional domains in which AI can be most effectively applied within microenterprises, including financial management, human resource management, marketing and customer engagement, supply chain management, operational efficiency, and risk management.

AI can significantly improve financial management by automating processes such as bookkeeping, expense tracking, and financial forecasting. Machine learning algorithms offer insights into cash flow patterns and expenditure trends, allowing managers to make more informed financial decisions (Batista et al., 2022; Mostiero, 2022). Moreover, AI-driven tools provide real-time financial reporting, which is particularly valuable for microenterprises with limited capacity for dedicated financial oversight (Mostiero, 2022).

In microenterprises, where the owner-manager often performs multiple roles, AI can streamline human resource management by enhancing recruitment and employee supervision processes. AI tools facilitate candidate screening through résumé parsing and predictive analytics, assessing applicant suitability based on historical data (Seman et al., 2019). Additionally, AI can support employee performance evaluation by tracking productivity and providing data-based feedback, thereby encouraging a culture of continuous improvement (Seman et al., 2019).

AI has also demonstrated substantial potential in marketing and customer engagement. Through data mining and predictive analytics, AI enables microenterprises to analyse customer behaviour and preferences more effectively. These insights support the design of personalised marketing campaigns and the deployment of AI-powered chatbots, improving customer interaction and increasing conversion rates (Tosca et al., 2025). Predictive analytics further helps identify emerging consumer trends, allowing microenterprises to adjust their offerings to evolving market demands (Alves, Carvalho, 2022).

For microenterprises operating in retail or manufacturing sectors, AI can enhance supply chain management by improving demand forecasting and inventory control. AI-driven solutions facilitate automated order scheduling and real-time inventory tracking, thereby reducing holding costs and stockouts (Olanrewaju, Olanrewaju, 2020). These capabilities are particularly advantageous in rural or developing regions, where logistical challenges are common (Agustin et al., 2024).

AI contributes to operational efficiency by automating repetitive tasks and optimising workflow processes. Microenterprises can implement AI-based systems for production scheduling, resource allocation, and quality assurance (Klute-Wenig, Refflinghaus, 2020). Such applications enable more effective utilisation of scarce resources and allow for rapid organisational responses to market fluctuations (Kevill et al., 2020).

Finally, AI can play an important role in risk management by analysing historical data to predict potential threats related to financial performance, operational disruptions, or market instability. For example, AI systems can assess credit risk when applying for loans, supporting more financially sound decision-making (Nkote, Jakweyo, 2024). They can also aid in developing contingency strategies to mitigate the effects of unforeseen market changes (Bruhn et al., 2013).

The integration of AI into key managerial functions therefore presents substantial opportunities for microenterprises to improve their operations and drive sustainable growth. By leveraging AI technologies, microenterprises can strengthen financial stability, enhance operational efficiency, and innovate in customer relations and supply chain processes. Embracing AI adoption is thus essential for maintaining competitiveness and adaptability in an increasingly dynamic business environment.

Understanding these functional applications provides the necessary context for developing a structured process model of AI acceptance and implementation in microenterprises.

3. The process of acceptance and implementation of AI in microenterprises

The process of acceptance and implementation of AI in microenterprises may be conceptualised as a sequence of interrelated stages shaped by the specific managerial and organisational characteristics of these small entities. Unlike larger companies, microenterprises operate under tighter resource constraints, which makes the role of managerial attitudes and decision-making particularly significant. Figure 1 illustrates the proposed stages of the process of acceptance and implementation of AI in microenterprises, developed on the basis of the existing literature. Each stage represents a necessary condition for progression to the next, forming a cumulative and iterative process that mirrors the gradual nature of technological assimilation in small firms.

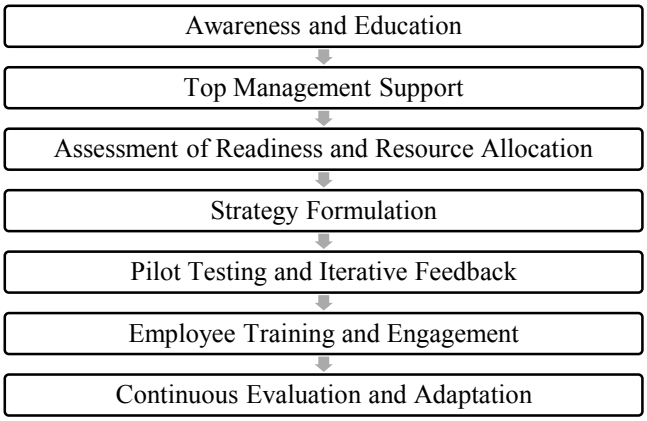

Figure 1. Stages of the process of acceptance and implementation of AI in microenterprises.
Source: own work.

The first stage involves raising awareness among managers about the potential benefits and applications of AI within their specific business context. Owner-managers must familiarise themselves with AI technologies and recognise their relevance for improving operational efficiency, customer engagement, and overall business performance (Wong, Yap, 2024). This educational phase may include participation in workshops, webinars, or online training designed to increase technological literacy and understanding of AI capabilities (Chen et al., 2020).

The next stage emphasises the importance of top management support. Research demonstrates that managerial commitment is strongly associated with successful AI implementation (Wong, Yap, 2024; Ghani et al., 2022). Owner-managers in microenterprises must actively promote AI initiatives, ensuring that they are aligned with organisational goals and effectively communicated to employees. Their leadership role extends to allocating the necessary financial and human resources and to fostering a culture that values experimentation, innovation, and learning (Rawashdeh et al., 2023).

Following this, managers should conduct a readiness assessment to evaluate their organisation's capacity for AI adoption. This includes analysing available financial resources, employee skill levels, and the state of existing IT infrastructure (Priya et al., 2022). Any gaps in these areas may be addressed through targeted training, collaboration with technology partners, or by seeking public support programmes that facilitate digital transformation in small firms (Dwivedi et al., 2021). Effective allocation of limited resources is critical to ensuring that AI implementation efforts are both feasible and sustainable (Chen et al., 2020).

Once readiness is established, microenterprises should engage in strategy formulation for AI adoption. This strategic plan should define clear objectives – such as enhancing customer service through AI chatbots or improving inventory control with predictive analytics – while identifying measurable success indicators and potential returns on investment (Jankovic, Curovic, 2023; Rawashdeh et al., 2023). Establishing such a roadmap helps ensure that AI initiatives are coherent with broader organisational priorities.

A subsequent stage involves pilot testing selected AI applications on a small scale before full implementation. This experimental phase enables managers to assess technological feasibility, collect user feedback, and refine both the tools and processes based on actual performance (Ore, Sposato, 2021). Cultivating a feedback-oriented environment is essential, as it transforms pilot testing into an iterative learning process that enhances both managerial confidence and employee engagement (Jankovic, Curovic, 2023).

Effective AI implementation also requires employee training and engagement. Managers should invest in capacity building to ensure that employees not only acquire the necessary technical competencies but also understand the practical value of AI in their daily tasks (Chen et al., 2022; Wong, Yap, 2024). Training programmes should emphasise collaboration between humans and AI systems, promoting a mindset in which technology is viewed as a complementary, rather than substitutive, element of work (Nayal et al., 2021).

Finally, AI adoption necessitates continuous evaluation and adaptation. Microenterprises must periodically assess the effectiveness of AI tools, monitor evolving market trends, and adjust their strategies in response to technological advancements (Jankovic, Curovic, 2023; Upadhyay et al., 2022). This cyclical approach ensures that AI systems remain aligned with organisational objectives and continue to deliver value over time.

In summary, the acceptance and implementation of AI in microenterprises is a multifaceted, iterative process driven by managerial awareness, commitment, and adaptability. By progressing through successive stages – awareness, managerial support, readiness assessment, strategic planning, pilot testing, training, and continuous evaluation – microenterprises can gradually integrate AI technologies into their operations. This structured pathway enables smaller firms to harness AI as a catalyst for efficiency, innovation, and sustainable growth within their unique organisational contexts.

4. Methodology of the Pilot Study

The proposed process required pilot testing to verify its conceptual validity. In particular, the pilot study aimed to determine whether all the identified stages should be included and whether their sequence accurately reflected the logic of AI acceptance and implementation in microenterprises.

To conduct the study, snowball sampling was used to recruit participants. This non-probability sampling technique began with a small group of initial respondents who subsequently referred other potential participants, thereby expanding the sample within a targeted and often hard-to-reach population. This approach was particularly suitable given the exploratory nature of the research and the specific characteristics of the target group (Chen et al., 2019). Furthermore, the method fostered trust and encouraged participation, which is especially important when the study concerns managerial and organisational practices.

The survey population comprised owners and knowledge (white-collar) employees of microenterprises. Self-employed individuals were excluded, as their operations, though formally classified as microenterprises, do not typically reflect the organisational characteristics under investigation.

The pilot study was conducted in July 2025 using an online questionnaire designed to assess the clarity and applicability of the proposed process model. The instrument contained seventeen questions presented in Table 1. One question addressed the industry in which the enterprise operated, while the remaining sixteen items referred to the stages of AI acceptance and implementation discussed earlier in the paper. The survey design aimed to verify the conceptual alignment between the theoretical process stages and practical perceptions of microenterprise employees

Table 1.
Pilot study questions

Step in AI adoption	Question	Source
Awareness and Education	How familiar are you with the concept of Artificial Intelligence (AI) and its applications in your industry? (1-5 Likert scale)	Kim et al. (2024)
	Have you participated in any training sessions related to AI in the past year? (yes/no)	Agustono et al. (2023)
	What sources do you primarily use to learn about AI technologies? (multiple-choice question)	Agustono et al. (2023)
Top Management Support	To what extent do you feel that top management supports the integration of AI within your company? (1-5 Likert scale)	Na et al. (2023)
	Has upper management allocated resources (financial, human, technological) specifically for AI implementation in your company? (yes/no/I don't know)	Horvat et al. (2023)
Assessment of Readiness and Resource Allocation	How would you rate our company's overall readiness to adopt AI technologies? (1-5 Likert scale)	Felemban et al. (2024)
	Do you believe we have the necessary technical skills among staff to implement AI? (1-5 Likert scale)	Na et al. (2022)
	What barriers do you perceive as most significant in adopting AI? (multiple-choice question)	Parameswari et al. (2024)

Cont. table 1.

Strategy Formulation	Is there a documented strategy for AI integration in your company? (yes/no/I don't know)	Botega, Silva (2020)
	How clear are the objectives and goals related to AI adoption? (1-5 Likert scale)	Wirtz et al. (2018)
Pilot Testing and Iterative Feedback	Have you used any AI applications in your work? (yes/no)	Strohm et al. (2020)
	If so, which ones? Please provide the name (short answer question)	n/a
	Is there a structured feedback mechanism for employees to share their experiences and suggestions during the pilot phase? (yes/no)	Kim et al. (2024)
Employee Training and Engagement	How engaged do you feel with the integration of AI technologies in daily tasks? (1-5 Likert scale)	Jankovic, Curovic (2023)
Continuous Evaluation and Adaptation	Is there a process in place for your company to adapt AI strategies based on performance evaluations? (yes/no/I don't know)	Paul et al. (2020)
	How open do you think your company is to making changes based on feedback about AI applications? (1-5 Likert scale)	Paesano (2021)

Source: own work.

Several questions used a five-point Likert scale, with anchors adapted to the semantic context of each construct, as follows:

- *1 = Not at all familiar – 5 = Extremely familiar* (familiarity with AI),
- *1 = Not supportive at all – 5 = Extremely supportive* (managerial support),
- *1 = Very unprepared – 5 = Very prepared* (organisational readiness),
- *1 = Strongly disagree – 5 = Strongly agree* (technical skills and engagement),
- *1 = Not clear at all – 5 = Extremely clear* (clarity of objectives),
- *1 = Not confident at all – 5 = Extremely confident* (confidence following training), and
- *1 = Not open at all – 5 = Very open* (openness to change and adaptation).

In addition to Likert-scale questions, the survey included dichotomous (*yes/no*) and multiple-choice items to gather descriptive data on AI implementation practices. This structure ensured conceptual consistency across all stages of the proposed process while maintaining response formats appropriate to each construct. All Likert items were coded so that higher values represented greater intensity of the measured attribute (e.g., stronger managerial support, higher readiness, greater familiarity).

The pilot study sample consisted of ten white-collar employees working in microenterprises. Participants were recruited through the author's professional network, meaning that the selection process was non-random. The respondents represented firms from the advertising, transport, tourism, and legal sectors, providing a sufficiently varied organisational background for assessing the general comprehensibility of the instrument.

The pilot study primarily focused on verifying whether the questions were understandable, logically structured, and appropriately aligned with the conceptual stages of the proposed process. Participant feedback confirmed that the questionnaire was clear and comprehensible, with no major ambiguities or technical issues reported.

5. Pilot research results

The results presented in Table 2, which refer to the Likert-scale questions, illustrate the respondents' perceptions of the individual stages of the proposed process of AI acceptance and implementation in microenterprises. Overall, the mean values remain within the low-to-moderate range, reflecting the early stage of AI adoption among the surveyed organisations.

Table 2.
Summary of Likert-Scale

Stage of Process	Question (summary)	Scale Anchors	Mean	SD
Awareness and Education	Familiarity with the concept of AI and its applications	1 = Not at all familiar – 5 = Extremely familiar	3.0	0.00
Top Management Support	Degree of managerial support for AI integration	1 = Not supportive at all – 5 = Extremely supportive	2.0	0.67
Readiness and Resource Allocation	Overall organisational readiness to adopt AI	1 = Very unprepared – 5 = Very prepared	2.4	0.52
	Availability of sufficient technical skills	1 = Strongly disagree – 5 = Strongly agree	2.4	0.52
Strategy Formulation	Clarity of AI-related objectives and goals	1 = Not clear at all – 5 = Extremely clear	1.8	0.42
Training and Engagement	Level of employee engagement in AI-related tasks	1 = Not engaged at all – 5 = Extremely engaged	2.0	0.67
Continuous Evaluation and Adaptation	Openness to making changes based on feedback	1 = Not open at all – 5 = Very open	3.4	0.52

Note. n = 10. Higher values indicate greater familiarity, support, readiness, engagement, or openness, depending on the construct measured.

Source: own work.

In the dimension of Awareness and Education, the mean score of 3.0 suggests a moderate level of familiarity with AI concepts and applications within the respondents' respective industries. By contrast, Top Management Support achieved a considerably lower mean score (M = 2.0), indicating that employees perceive limited institutional encouragement for AI-related initiatives.

The measures related to Organisational Readiness and Resource Allocation yielded mean scores of 2.4 for both readiness and technical skills, implying that the participating organisations are partially prepared for AI adoption but continue to face skill-based and infrastructural limitations. Similarly, Strategy Formulation recorded the lowest overall mean (M = 1.8), revealing an absence of clear strategic direction or formalised AI objectives.

Regarding Employee Training and Engagement, the mean score of 2.0 indicates a low-to-moderate level of involvement in AI-related activities, which corresponds with the limited formal training opportunities reported elsewhere in the survey. By contrast, the dimension of Continuous Evaluation and Adaptation yielded the highest score (M = 3.4), suggesting that although formal evaluation mechanisms are not yet established, employees are relatively open to feedback and change in relation to AI adoption.

Taken together, these findings confirm that the conceptual stages of the proposed process – from awareness to continuous adaptation – are empirically distinguishable and comprehensible to respondents. The low-to-moderate values also reinforce the interpretation that the participating microenterprises are at an early phase of AI acceptance and implementation, thereby supporting the conceptual soundness and practical relevance of the proposed process model for further empirical validation.

Responses to the non-Likert items complement the quantitative findings and provide additional insight into the current stage of AI acceptance and implementation in microenterprises. Among the ten respondents, four reported having participated in AI-related training within the past year, while the remaining six had not. When asked about sources of information on Artificial Intelligence, participants most frequently mentioned online courses and articles, often supplemented by peer discussions and independent exploration. These responses suggest that employees in microenterprises rely primarily on informal and self-directed learning rather than structured corporate training programmes.

Only two respondents indicated that top management had allocated financial, human, or technological resources to AI-related projects, while eight reported no such initiatives. This finding points to a generally low level of institutional support for AI development within the surveyed organisations, consistent with the early stage of digital maturity characteristic of microenterprises. When asked to identify the main barriers to AI adoption, participants most commonly cited a lack of technical expertise and resistance to change. A smaller number mentioned limited financial resources or a general reluctance toward using AI tools. These results confirm that both capability gaps and cultural factors remain central challenges for small enterprises considering AI implementation.

None of the participating organisations reported having a formal strategy for AI integration. Eight respondents explicitly answered "No" to the question about a documented strategy, while two selected "Not sure." Similarly, no respondents confirmed the existence of key performance indicators (KPIs) to evaluate AI initiatives. This pattern indicates that while awareness of AI benefits exists, most microenterprises remain in a preliminary conceptual phase, without formalised strategic frameworks to guide adoption.

All respondents stated that they had used AI tools in their professional work. The most frequently mentioned applications included ChatGPT (eight respondents), Perplexity, Gemini, Grok, and a graphic design programme incorporating AI-based functions. Additional feedback indicated that, apart from the graphic design software, participants primarily relied on free or privately accessed versions of these tools rather than company-licensed or tailored solutions. This suggests that AI utilisation within these firms is largely individual and experimental, rather than embedded within organisational processes.

Although formal training programmes were rare, respondents expressed moderate confidence in using AI tools, indicating growing familiarity achieved through self-learning and peer exchange. This demonstrates that employees are developing practical skills in AI use,

but mainly outside structured corporate contexts. Engagement levels appeared moderate as well, suggesting that employees are becoming involved in AI-related tasks but remain outside formal implementation frameworks. No respondents confirmed the presence of a formal process for evaluating or revising AI strategies within their organisations. Nevertheless, their answers demonstrated an overall openness to feedback and change, reflecting a positive attitude toward future adaptation once more systematic procedures are introduced.

A summary of the non-Likert questions is presented in Table 3.

Table 3.
Summary of Non-Likert Questions

Section	Type of Question	Main Findings (n = 10)
Awareness and Education	Training & information sources	4 trained; main sources: online courses, articles, peer discussions
Top Management Support	Resource allocation (yes/no)	2 yes; 8 no
Readiness and Resources	Main barriers (multi-choice)	Lack of technical expertise; resistance to change
Strategy Formulation	Strategy and KPIs (yes/no)	No strategy or KPIs reported
Pilot Testing & Feedback	Use of AI tools	All use AI; main tools: ChatGPT, Gemini, Grok
Training & Engagement	Self-assessed confidence	Moderate confidence, limited formal training

Note. KPIs – key performance indicators.

Source: own work.

The results of both the Likert and non-Likert items collectively confirm that the proposed stages of AI acceptance and implementation are understandable, distinct, and empirically relevant to the realities of microenterprises. However, the findings also reveal low managerial support, limited technical readiness, and a lack of strategic frameworks, signalling that most microenterprises remain in a nascent phase of AI integration.

Despite these limitations, the generally positive attitudes toward adaptation and openness to change suggest a potential foundation for more advanced AI initiatives in the future. Consequently, the pilot study supports the validity and practical utility of the proposed process model while also identifying key areas for improvement to be explored in larger-scale, confirmatory research. Overall, the pilot findings demonstrate that AI use in microenterprises is largely decentralised and employee-driven, reflecting early experimentation rather than systematic implementation. The absence of managerial guidance and organisational frameworks prevents firms from realising the full potential of AI technologies.

6. Discussion and conclusions

This paper identifies a range of potential benefits that microenterprises can derive from the utilisation of Artificial Intelligence (AI). These benefits have been categorised according to key functional areas of management, demonstrating the potential for performance improvement through the effective adoption of AI in daily operations.

A central element of the paper is the proposed process of AI acceptance and implementation in microenterprises, supported by a detailed discussion of its individual stages derived from the literature. To verify the conceptual validity of this process, a quantitative pilot study was conducted.

The results of the pilot study provide a valuable basis for refining the proposed process to ensure its closer alignment with the specific characteristics of microenterprises. These findings provide important insights into the underlying factors shaping the early stages of AI acceptance in microenterprises and highlight the role of managerial perceptions in determining the overall success of implementation efforts.

In particular, the findings indicate that the first two stages of the process – awareness and education, as well as top management support – have not been effectively fulfilled in the surveyed firms. The finding of low managerial support for AI initiatives can be further interpreted through the lens of technology acceptance theories, particularly the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). According to these models, individuals' willingness to adopt new technologies depends largely on their perceived usefulness, ease of use, and social influence. Recent studies confirm these mechanisms: top management support has been shown to significantly enhance AI adoption through its positive effect on perceived usefulness and ease of use (Song et al., 2025), while performance expectancy and social influence have emerged as critical predictors of behavioural intention to use AI (Su et al., 2025). In microenterprises, owner-managers often perceive AI as complex, costly, or misaligned with their operational needs, which reduces perceived usefulness and increases cognitive resistance. Limited technological literacy may also lower perceived behavioural control and self-efficacy, discouraging investment and experimentation. Consequently, the observed lack of managerial support may not stem solely from financial constraints but from underlying cognitive and behavioural barriers. Addressing these perceptual and attitudinal factors through targeted education, demonstration of practical benefits, and peer learning initiatives could therefore enhance managerial readiness and accelerate AI adoption in microenterprises. This behavioural interpretation also helps explain the broader organisational pattern observed in the pilot study, where AI adoption appears largely informal and employee-driven rather than strategically coordinated.

With the exception of graphic design applications, the AI tools used by employees were not intentionally selected to meet organisational needs but rather adopted individually, often through free or private versions. This suggests that top management lacks sufficient knowledge of tailored AI solutions, which in turn limits the strategic and coordinated use of such technologies. Consequently, the absence of these initial stages constrains the effectiveness of subsequent stages, as organisational readiness, strategy formulation, and employee engagement cannot be expected to reach a high level without foundational managerial awareness and support. Strengthening managerial understanding and commitment is therefore essential for progressing from individual, experimental AI use toward structured, organisation-wide implementation in microenterprises.

Despite these limitations, the pilot study offers practical insights for improving the proposed process and demonstrates that the conceptual stages are empirically distinguishable and understandable to respondents. The study also highlights the need to strengthen the early phases of AI acceptance – particularly managerial understanding and strategic guidance – as prerequisites for successful implementation in microenterprises.

As with any exploratory research, this pilot study has certain limitations. The analysis was based on a small, non-random sample of participants, which restricts the generalisability of the results. Moreover, the study's scope was limited to preliminary verification of the survey instrument and conceptual model rather than comprehensive statistical validation.

Future research should therefore aim to test the proposed process on a larger and more diverse sample of microenterprises, ideally across different sectors and national contexts. Further studies may also incorporate qualitative approaches, such as interviews or case studies, to explore managerial attitudes, decision-making mechanisms, and organisational barriers in greater depth. Additionally, longitudinal research could assess how improvements in the early stages of AI awareness and top management support influence the success of subsequent implementation efforts.

In summary, while AI offers substantial opportunities for improving the competitiveness and efficiency of microenterprises, its successful adoption depends on the development of knowledge, leadership, and strategic alignment at the managerial level. This dynamic underscore the significant research potential within the field of management sciences, particularly in identifying the conditions, strategies, and best practices that enable microenterprises to implement AI effectively and sustainably. By addressing these gaps, future studies can contribute not only to theory-building in the field of AI adoption but also to practical frameworks supporting the digital transformation of microenterprises.

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