Determinants of Artificial Intelligence Driven E-Commerce Adoption and Its Impact on SMEs: Evidence from the Eastern Province of Sri Lanka

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Abstract

Artificial intelligence (AI) is increasingly changing the way businesses conduct their e-commerce activities by helping them improve customer service, make better decisions, and manage business operations more efficiently. However, many small and medium-sized enterprises (SMEs), particularly those operating in developing regions, still face challenges in adopting these technologies. Against this background, this study examines how dynamic capabilities, entrepreneurial orientation, and customer-centric systems are related to AI adoption in e-commerce among SMEs in Sri Lanka's Eastern Province. A quantitative, cross-sectional survey was conducted among 140 respondents representing SMEs in Batticaloa, Trincomalee, and Ampara districts. Data were collected through a structured questionnaire and analysed using multiple regression analysis. The results show that the three organisational factors collectively explain 75% of the variation in AI adoption ($R^2 = .748$; adjusted $R^2 = .742$; $p < .001$). These findings suggest that SMEs are more likely to embrace AI when they can adapt to changing business conditions, respond to customer needs, and encourage innovation. The study provides empirical insights into the organisational factors associated with AI adoption in a regional business context. It also highlights the importance of strengthening organisational capabilities, improving digital readiness, and providing appropriate support to help SMEs make better use of AI in their e-commerce activities. The findings are relevant to SME managers, policymakers, technology providers, and higher-education institutions seeking to promote digital transformation among SMEs.

Keywords: Artificial Intelligence; AI and E-commerce; AI and SMEs; Eastern Province and SMEs.

1. Introduction

Artificial intelligence (AI) has evolved from an emerging technological concept into an increasingly important part of modern digital business. In e-commerce, AI is used in various ways, including improving customer interactions, recommending products, personalizing marketing activities, managing

inventory, forecasting demand, detecting fraudulent transactions, and automating customer services [1], [2]. These applications are particularly valuable to small and medium-sized enterprises (SMEs), as AI-based digital tools can help small teams manage business activities more efficiently, improve decision-making, and respond more effectively to changing customer needs and expectations. The original study focuses on a specific regional context: SMEs operating in Sri Lanka's Eastern Province, where access to digital infrastructure, specialised skills, financial resources, and technology related training may present challenges. Previous research has highlighted limitations in infrastructure, ICT facilities, and the availability of quality training in parts of the Eastern Province [3]. Similarly, the [4] identified access to finance, technology, and business development services as important constraints affecting Sri Lankan SMEs. The Eastern Province, which comprises Batticaloa, Trincomalee, and Ampara districts, has a diverse SME sector covering retail, services, manufacturing, tourism, agriculture-related businesses, and other commercial activities. Therefore, the challenges and opportunities faced by these enterprises need to be understood within their regional context rather than assuming that findings from large corporations or highly digitised urban economies can be directly applied to them. Dynamic capability refers to a firm's ability to continuously learn, identify new opportunities, adapt to technological developments, and reorganise its resources in response to changes in the business environment [5], [6]. Entrepreneurial orientation reflects the extent to which a firm encourages innovation, takes calculated risks, and proactively explores new business opportunities [7], [8]. Customer-centric systems refer to the digital tools and organisational practices that help businesses understand customer preferences, analyse customer information, and respond effectively to changing customer needs and expectations [9]. These three factors provide the foundation for examining how internal organisational strengths contribute to AI adoption among SMEs in e-commerce.

The study is grounded in the broader literature on technology adoption and draws particularly on the framework attributed to [10], as discussed in the original manuscript. It also considers several established theoretical perspectives, including the Technology-Organisation-Environment (TOE) framework, Resource-Based View (RBV), Dynamic Capabilities Theory, Diffusion of Innovation (DOI) theory, and the Unified Theory of Acceptance and Use of Technology (UTAUT). These perspectives provide complementary explanations of how and why organisations adopt new technologies. The central argument is that technology adoption does not depend solely on the availability of technology or the technical infrastructure required to implement it. Rather, it is also shaped by an organisation's internal resources, ability to adapt to change, willingness to innovate, and capacity to create value for customers. Recent studies on AI and digital technology adoption among SMEs support this broader view, highlighting the importance of organisational readiness, management support, digital capabilities, innovation culture, and access to relevant resources [11], [12], [13]. Therefore, examining dynamic capability, entrepreneurial orientation, and customer-centric systems provides a useful theoretical basis for understanding AI adoption in e-commerce among SMEs.

Research problem

Although artificial intelligence (AI) offers significant opportunities to improve e-commerce activities, its adoption among small and medium-sized enterprises (SMEs) remains challenging. Many SMEs are still at an early stage of adopting AI because they face practical difficulties such as the high cost of implementation, limited digital infrastructure, a shortage of employees with specialised technical skills, and a lack of knowledge about how AI can be applied to their business operations. In some cases, business owners may also be uncertain about the benefits of AI and whether investing in such technologies is worthwhile [12], [14]. These challenges may be particularly important for SMEs operating in developing regions, where access to financial resources, digital technologies, and appropriate training opportunities can be limited. Evidence from a 2024 assessment of micro, small and medium-sized enterprises in Sri Lanka also highlights the difficulties businesses experience in adopting digital technologies, particularly their complexity, implementation costs, and lack of awareness of suitable digital tools [15].

Furthermore, although research on AI adoption has grown considerably, much of the existing literature has focused on large organisations and technologically advanced business environments. The challenges faced by smaller enterprises in developing regional economies therefore require greater research attention [12], [16]. In particular, there is still a need to understand how the internal organisational characteristics of SMEs influence their decisions to adopt AI in e-commerce within the Sri Lankan context. This issue is particularly relevant to the Eastern Province, where SMEs operate across different business sectors and under varying resource and technological conditions.

Objectives of the study

The main objective of this study is to examine the influence of dynamic capabilities, entrepreneurial orientation, and customer-centric systems on the adoption of AI in e-commerce among SMEs in Sri Lanka's Eastern Province.

Specific Objectives

- To examine the influence of dynamic capabilities on AI adoption in e-commerce among SMEs in the Eastern Province.
- To determine the influence of entrepreneurial orientation on AI adoption in e-commerce among SMEs in the Eastern Province.
- To investigate the influence of customer-centric systems on AI adoption in e-commerce among SMEs in the Eastern Province.
- To apply an established technology adoption perspective to understand AI adoption among SMEs in the regional business context.
- To identify practical measures that could improve AI readiness and encourage AI adoption among SMEs in the Eastern Province.

Literature Review and Theoretical Foundation

Artificial Intelligence in SME E-Commerce

Artificial intelligence (AI) in e-commerce involves a range of technologies and applications rather than a single technological solution. These include chatbots, product recommendation systems, predictive analytics, automated business processes, customer-data analysis, and AI-supported digital marketing. Such applications can help SMEs improve customer interactions, understand purchasing behaviour, personalise their marketing activities, and make better-informed business decisions [12]. For SMEs, the real value of AI lies in its ability to support employees, make better use of limited resources, improve operational efficiency, and respond more effectively to changing customer expectations. In particular, AI-based tools can help small businesses perform certain activities more efficiently without having to expand their workforce significantly. Recent research also highlights the potential of AI to improve customer engagement, business productivity, decision-making, and innovation.

However, adopting AI also presents several challenges for SMEs. The initial investment and ongoing software costs, limited technical knowledge, shortage of skilled employees, resistance to organisational change, and inadequate digital infrastructure can make implementation difficult. In addition, concerns about customer-data privacy, cybersecurity, and dependence on external technology providers may create further uncertainty. Recent OECD evidence identifies financial constraints, skills shortages, integration difficulties, and data-security concerns as important barriers to effective AI adoption among smaller businesses [17], [12].

Technology adoption perspectives

The Technology-Organization-Environment (TOE) framework provides a useful foundation for understanding technology adoption at the organisational level. It explains that the adoption of new technologies is influenced by three interconnected dimensions: technological characteristics, organisational conditions, and environmental factors [18], [11]. In the present study, the three selected independent variables—dynamic capabilities, entrepreneurial orientation, and customer-centric systems are primarily associated with the organisational dimension of the TOE framework. The Resource-Based View (RBV) offers another perspective by emphasising the importance of a firm's internal resources and capabilities in developing competitive advantage [19]. Building on this perspective, Dynamic Capabilities Theory explains how firms identify opportunities, respond to changes, and reorganise their resources to remain competitive in a changing business environment [5]. This perspective is particularly relevant to AI adoption because SMEs need to continuously develop their capabilities and adjust their business practices to benefit from emerging technologies.

Similarly, Diffusion of Innovation (DOI) theory explains how the characteristics of an innovation influence its adoption. It identifies five important attributes: relative advantage, compatibility, complexity, trialability, and observability [20]. These attributes help explain why some businesses are more willing than others to adopt AI-based solutions. The Unified Theory of Acceptance and Use of Technology (UTAUT), developed by [21], provides a complementary perspective by explaining

technology acceptance through performance expectancy, effort expectancy, social influence, and facilitating conditions.

Taken together, these theoretical perspectives demonstrate that AI adoption is not simply a matter of having access to technology. It is a broader process influenced by organisational resources, management capabilities, innovation orientation, technological characteristics, and the surrounding business environment. Recent research on AI adoption among SMEs also supports the importance of considering these interconnected factors when examining organisational readiness and technology adoption [12], [13], [32].

Dynamic capability

Dynamic capability refers to a firm's ability to adapt to changes in its business environment, identify new opportunities, and reorganise its resources to respond effectively to those changes [5], [22]. In the context of AI adoption, this capability involves recognising suitable AI applications, developing or acquiring the necessary digital skills, redesigning existing business processes, allocating resources effectively, and learning from practical implementation experiences. These activities reflect the three key dimensions of dynamic capabilities: sensing opportunities, seizing them, and transforming or reconfiguring organisational resources [23], [31]. Rather than investing in large-scale technological transformations, these businesses may benefit from introducing affordable AI solutions gradually, learning from their experiences, and expanding their use of technology as their capabilities develop. Recent research suggests that digital and innovation capabilities play an important role in supporting AI adoption among SMEs, while organisational learning and resource flexibility can help businesses manage the challenges associated with technological change [23], [24].

Entrepreneurial orientation

Entrepreneurial orientation refers to a firm's strategic approach towards innovation, proactiveness, and risk-taking [7]. SMEs whose management actively seeks new business opportunities and encourages innovative thinking may be more willing to explore and experiment with emerging technologies. In the context of e-commerce, this orientation can encourage businesses to adopt and test AI-based applications such as personalised marketing, automated customer services, predictive analytics, and business process automation. Recent research suggests that entrepreneurial orientation can play an important role in encouraging digital transformation and technology adoption among SMEs [25], [26]. In particular, a recent study of AI adoption among micro and small enterprises found that entrepreneurial orientation was an important factor influencing their adoption decisions [32].

However, having a strong entrepreneurial orientation does not necessarily mean that a business has sufficient financial resources, technical expertise, or organisational capabilities to implement AI successfully. Therefore, entrepreneurial orientation needs to be considered alongside other internal organisational factors, particularly dynamic capabilities and digital readiness, when examining AI adoption among SMEs [26], [12].

Customer-centric systems

Customer-centric systems focus on placing customer needs, preferences, and experiences at the centre of business activities. In e-commerce, artificial intelligence (AI) can support this approach through applications such as chatbots, personalised product recommendations, customer-data analysis, automated feedback systems, and targeted marketing communication. These technologies enable businesses to better understand customer behaviour, provide more personalised services, and improve interactions throughout the online shopping experience [27], [28]. Recent research also highlights the role of AI-driven customer interactions and personalised recommendations in improving customer engagement, satisfaction, and trust in e-commerce environments [29], [30]. For SMEs, particularly those operating in competitive e-commerce markets, a strong focus on customer value can provide a clear reason to invest in AI-based technologies. When business owners can recognise how AI applications improve customer service, respond more quickly to enquiries, and provide relevant product suggestions, the benefits of adopting these technologies become more understandable. Therefore, customer-centric systems may encourage SMEs to consider AI adoption as a practical way of improving customer experience and strengthening their competitiveness. However, the benefits depend on the ability to use customer information responsibly and maintain customer trust [27].

Research Gap and Theoretical Rationale

Existing research on AI adoption highlights several important gaps that need further attention. First, previous studies have often examined technology adoption from different theoretical perspectives, focusing separately on user perceptions, organisational resources, internal capabilities, or external environmental factors. As a result, there is still a need for a more integrated understanding of how these factors work together to influence AI adoption. Second, much of the available empirical evidence comes from large organisations and businesses operating in urban areas or technologically advanced economies. Third, relatively little research has examined the specific challenges and opportunities faced by SMEs in Sri Lanka's Eastern Province. Finally, the adoption of AI across different business sectors and everyday business activities has received less attention, particularly among SMEs that are still developing their digital capabilities. These gaps highlight the need for further research into the organisational factors influencing AI adoption in e-commerce within developing regional business environments. An SME may have a strong focus on customer needs and a positive attitude towards innovation but still face difficulties in adopting AI because of limited infrastructure, technical skills, or financial resources. This shows that having the right organisational mindset and capabilities alone may not be enough to ensure successful AI adoption. External support, such as access to finance, digital infrastructure, and appropriate training, also plays an important role. Therefore, the internal factors examined in this study should be understood as organisational conditions that may encourage AI readiness and adoption, while recognising that their effectiveness can also depend on the support and resources available within the local business environment.

Conceptual framework of the proposed study

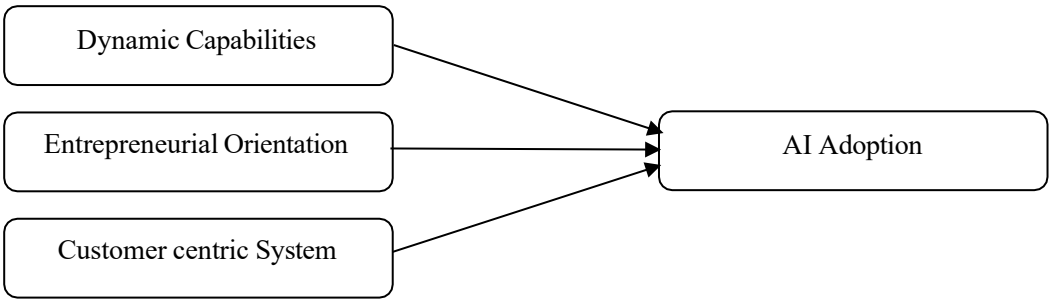

Figure 1: Conceptual Framework

This study proposes that dynamic capability, entrepreneurial orientation, and customer-centric systems play important roles in encouraging AI adoption in e-commerce among SMEs. The conceptual framework focuses on these three internal organisational factors and examines how they relate to the adoption of AI technologies. In particular, it seeks to understand whether a firm's ability to adapt to change, willingness to explore new ideas, and commitment to meeting customer needs can encourage the use of AI in its e-commerce activities.

Hypotheses

H1: Dynamic capability has a significant positive relationship with AI adoption in e-commerce among SMEs in the Eastern Province.

H2: Entrepreneurial orientation has a significant positive relationship with AI adoption in e-commerce among SMEs in the Eastern Province.

H3: Customer-centric systems have a significant positive relationship with AI adoption in e-commerce among SMEs in the Eastern Province.

Research Methodology

Research design

This study adopts a quantitative, cross-sectional survey approach to examine the relationships between the selected organisational factors and AI adoption in e-commerce. This approach allows the researcher to collect data at a particular point in time and statistically assess the relationships among the variables. Data are collected using a structured questionnaire designed to measure three independent variables—dynamic capability, entrepreneurial orientation, and customer-centric systems—and one dependent variable, AI adoption in e-commerce.

Population and sampling

The target population for this study consists of small and medium-sized enterprises (SMEs) operating in the three districts of Sri Lanka's Eastern Province: Batticaloa, Trincomalee, and Ampara. Purposive sampling was used to select businesses that were relevant to the study, particularly those involved in e-

commerce or using digital technologies in their business operations. Data were collected from business owners, managers, and IT personnel who had sufficient knowledge of their organisations' digital activities and business decision-making processes. This approach helped ensure that the respondents were in a suitable position to provide relevant information about the factors influencing AI adoption in e-commerce. A total of 140 respondents from SMEs in the Eastern Province participated in the study. They were drawn from the three districts, with approximately 40–50 respondents from Batticaloa, 40–50 from Trincomalee, and 30–40 from Ampara. The questionnaire was shared electronically, mainly through email and WhatsApp, making it easier for business owners, managers, and other relevant employees to participate in the survey.

Results and Discussion

Demographic Data Analysis

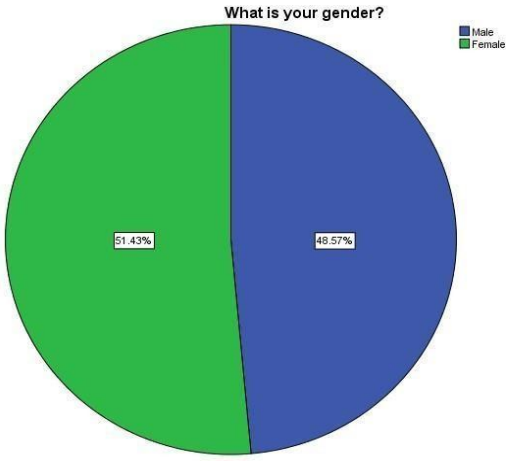

Figure 1 - Gender distribution

The gender distribution among the respondents is close to even with 48.6% of the SMEs represented as male and 51.4% as female. This implies that the two genders are actively engaged in the management and operations of e-commerce-related business transactions in the Eastern Province. The close balance of participation suggests that more people are becoming more inclusive and diverse in their entrepreneurial activities, especially the females, who had a slight advantage over the males in the participation. This can indicate the new governmental support and digital empowerment programs. The percentage cumulative amounted to 100% at the female category, which confirms the coverage of the responses. Overall, the gender representation makes the findings credible and diverse to facilitate generalization on male- and female-led SMEs.

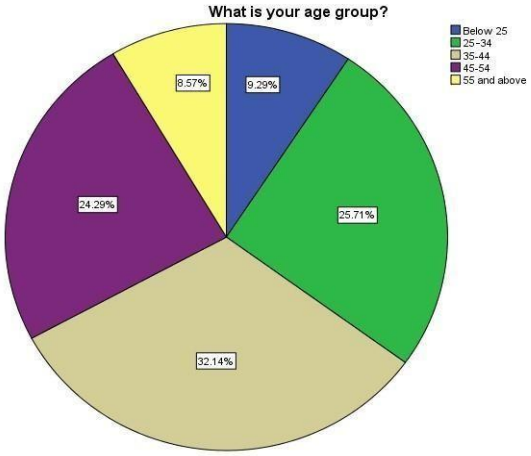

Figure 2 - Age group distribution

The age brackets show that 35-44 years bracket (32.1%) has the highest population of SME operators, and the second bracket is 45-54 which constitutes 24.3%. The age bracket of respondents (25-34) takes a contribution of 25.7% and the trend is towards younger entrepreneurship involvement. Otherwise, young people under 25 (9.3%) and older people over 55 (8.6%) are even smaller proportions, probably because of the lack of business experience or activity in retirement. The cumulative percentage curve represents slow representation of age groups with the highest age category (100%) being the oldest. The high density of middle-aged people suggests that mature and technologically mindful and organizational responsibility mature managers are involved in the decision to adopt AI.

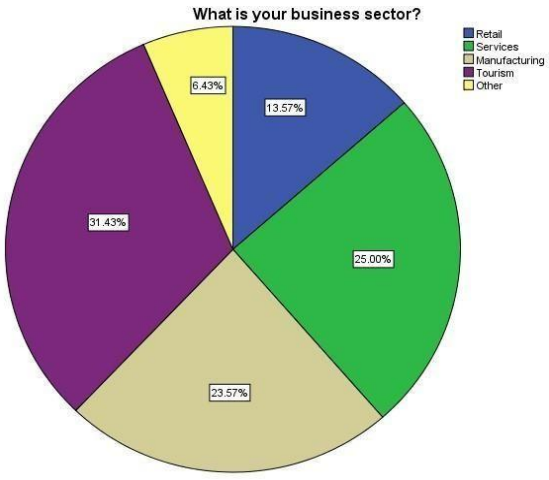

Figure 3 - Business sector distribution

The sector-based analysis indicates that the tourism-related SMEs constitute the biggest segment of 31.4% because of the regional economic structure of the Eastern Province.

The service sector respondents take 25.0%, and closely in the second place is manufacturing, which appears at 23.6%. Retail businesses make 13.6% and 6.4% represent the other categories of it like agriculture or consultancy. The general more significant coverage of tourism and services is consistent with the growing consumer engagement and marketing trends of digitalization. The AI applications such as chatbots, personalization engines, and demand analytics are useful in these sectors. The frequency became 100% at the other category, which ensured that all the responses were obtained. This distribution is an indication of a varied business environment that can be used in the analysis of AI adoption.

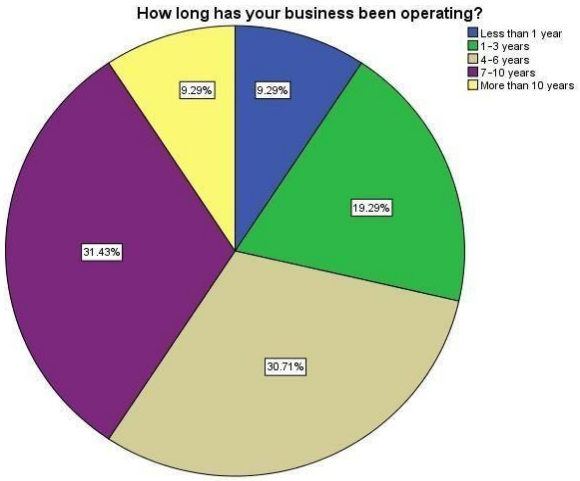

Figure 4 - Operating frequency

Respondents have varied operational experience as 31.4% of the SMEs have an operational experience of between 7-10 years with 30.7% years coming closely behind. This shows that the sample is composed of established businesses. Moreover, 19.3% have existed 1-3 years, which is an indication of young entrepreneurship. The percentage of less than one year and over ten years was only 9.3% which represents a lower number of new started or old enterprise. The cumulative percentage topped 90.7% at 7-10 years and ended at 100% more than 10 years. The preponderance of medium-experienced companies indicates that they are willing to incorporate AI since they have operational stability and maturity of resources.

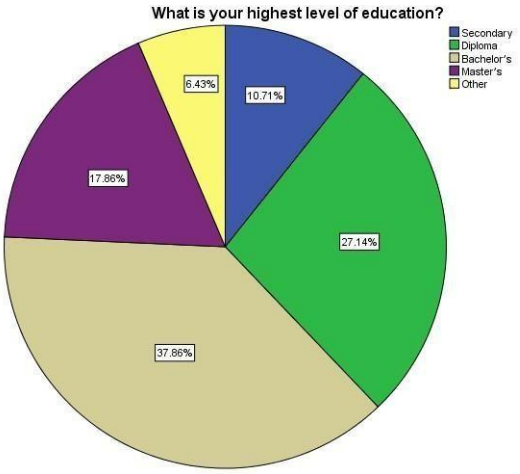

Figure 5 - Education level distribution

Education level shows that bachelor's degree holders constitute the highest percentage of 37.9%, then diploma holders have 27.1%. The respondents with a master's degree comprise 17.9% and this indicates the emergence of academically qualified business leaders. The secondary-level education forms 10.7% with 6.4% in other classes like professional certifications. At the category of the Other, which sums up all the respondents, the cumulative percentage was 100%. More advanced levels of education imply a more positive digital literacy level, an innovative friendly attitude, and awareness of AI-based business tools. The present academic profile justifies the possibility of making informed decisions related to e-commerce technologies and strategy-based digital transformation projects.

Descriptive statistics of study constructs

Table 1: Descriptive statistics of study constructs

Construct	N	Mean	SD	Skewness	Kurtosis
AI Adoption in E-Commerce	140	3.734	0.7143	-0.987	0.654
Dynamic Capability	140	3.739	0.7059	-1.083	0.825
Entrepreneurial Orientation	140	3.719	0.6772	-0.895	0.749
Customer-Centric System	140	3.814	0.6305	-0.905	0.511

All four substantive constructs have mean values above 3.70 on the five-point scale. Within the sample, customer-centric systems have the highest mean (3.814), followed by dynamic capability (3.739), AI adoption (3.734), and entrepreneurial orientation (3.719). The standard deviations are below 0.72, indicating relatively concentrated responses.

Correlation analysis

Table 2: Correlation analysis

Variable	AI Adoption	Dynamic Capability	Entrepreneurial Orientation	Customer-Centric System
AI Adoption	1.000	.863**	.846**	.853**
Dynamic Capability	.863**	1.000	.817**	.885**
Entrepreneurial Orientation	.846**	.817**	1.000	.816**
Customer-Centric System	.853**	.845**	.816**	1.000

** Correlation is significant at the 0.01 level (two-tailed), as reported in the original analysis.

The correlation analysis shows that AI adoption is very strongly and positively associated with dynamic capability (r = .863) and customer-centric systems (r = .853). It also has a strong positive relationship with entrepreneurial orientation (r = .846). Furthermore, the independent variables are correlated with one another, with correlation coefficients ranging from .816 to .845. These findings suggest that the three organisational factors are closely related to some extent within the SMEs included in the study.

Multiple Regression Analysis

Model Summary

Table 4: Model Summary

Statistic	Value
R	.865
R Square	.748
Adjusted R Square	.742
Std. Error of Estimate	.1609
F Change	153.05
df1 / df2	3 / 136
Sig. F Change	< .001
Durbin–Watson	1.947

Corrected Model Summary

The multiple regression analysis produced an R-value of .865 and an R^2 value of .748, indicating a very strong relationship between the three independent variables and AI adoption. The results suggest that dynamic capability, entrepreneurial orientation, and customer-centric systems collectively explain approximately 75% of the variation in AI adoption among the SMEs included in the study. Furthermore, the adjusted R^2 value of .742 shows that the model maintains a similarly high explanatory power even after accounting for the number of predictors included in the analysis.

ANOVA Test

Table 5: ANOVA

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	57.395	3	19.465	787.780	< .001
Residual	3.421	136	.023		
Total	68.915	139			

The ANOVA results show that the overall regression model is statistically significant, with an F-value of 787.780, $p < .001$. This indicates that the three independent variables, when considered together, significantly explain variations in AI adoption. In addition, the Durbin–Watson value of 1.747 is close to the recommended value of 2, suggesting that there is no major concern regarding autocorrelation among the regression residuals.

Regression Coefficients and Hypothesis Testing

Table 5: Hypothesis Testing

Predictor	Standardized β	Sig.	Correlation with AI Adoption	Hypothesis
Dynamic Capability	.430	< .001	.863**	H1 Supported
Entrepreneurial Orientation	.130	< .001	.846**	H2 Supported
Customer-Centric System	.346	< .001	.853**	H3 Supported

H1: Dynamic capability

H1 is supported by the reported regression coefficient ($\beta = .430$, $p < .001$) and the strong positive bivariate correlation ($r = .863$). Within the model, dynamic capability has the largest standardized coefficient. This result is consistent with the argument that SMEs able to learn, adapt processes, and reconfigure resources may be better positioned to integrate AI applications.

H2: Entrepreneurial orientation

H2 is supported by the reported coefficient ($\beta = .130$, $p < .001$) and correlation ($r = .846$). The standardized coefficient is smaller than those of dynamic capability and customer-centric systems, but the association remains statistically significant. The finding suggests that innovation, proactiveness, and calculated risk-taking are relevant to AI adoption even when other internal factors are considered simultaneously.

H3: Customer-centric systems

H3 is supported by the reported coefficient ($\beta = .346$, $p < .001$) and correlation ($r = .853$). The result indicates that customer-oriented digital practices are closely associated with AI adoption. In an e-commerce setting, firms that emphasize customer understanding and personalized service may have clearer business reasons to deploy chatbots, recommendation systems, analytics, and automated feedback mechanisms.

Conclusions and Recommendations

The findings reveal strong positive relationships between the three organisational factors and AI adoption among the SMEs included in the study. These results support the main argument of the study that successful digital transformation depends not only on having access to technology but also on an organisation's ability to develop the necessary capabilities to use it effectively. Among the three factors, dynamic capability recorded the highest standardised regression coefficient, highlighting its important role in AI adoption. This suggests that SMEs need to be able to learn, respond to changes, and make effective use of their available resources when introducing new technologies. Since many SMEs operate with limited financial and human resources, their ability to adapt existing processes, gain experience, and learn from using new technologies can make a significant difference in their adoption of AI. This finding also supports the Dynamic Capabilities perspective discussed in the literature review, which emphasises the importance of an organisation's ability to adapt and respond to changes in its business environment.

Entrepreneurial orientation was also found to have a statistically significant relationship with AI adoption, although it recorded the lowest standardised coefficient among the three predictors. This indicates that having an innovative and proactive approach to business is important, but it may not be enough on its own to encourage AI adoption. Although an SME may be willing to explore and experiment with AI technologies, successful implementation also depends on having the necessary skills, infrastructure, data, and financial resources. Therefore, entrepreneurial orientation needs to be supported by other organisational capabilities to achieve meaningful results.

Customer-centric systems also demonstrated a strong relationship with AI adoption. This finding is particularly relevant to e-commerce, where many AI applications are directly linked to improving customer experiences and service quality. For example, businesses that regularly collect and analyse customer preferences and feedback are better positioned to use AI-based tools such as personalised product recommendations, chatbots, and automated customer services. These technologies can help SMEs understand customer needs more effectively and improve the way they interact with customers.

The regional context should also be considered when interpreting the findings of this study. The research focused specifically on SMEs operating in Batticaloa, Trincomalee, and Ampara districts rather than covering businesses across the whole country. Therefore, the findings reflect the relationships between the selected organisational factors and AI adoption within this particular regional setting. The study also highlights several challenges faced by SMEs in these areas, including inadequate or uneven digital infrastructure, limited opportunities for specialised training, financial difficulties, and a lack of exposure to AI technologies.

However, these challenges do not reduce the importance of internal organisational capabilities. In fact, they may make it even more important for SMEs to focus on learning, experimenting with new technologies, managing available resources effectively, and maintaining close relationships with customers. At the same time, it is important to recognise that internal capabilities alone may not be sufficient to overcome all these challenges. Support from external stakeholders, including government institutions, financial organisations, technology providers, and training institutions, is also essential to

ensure sustainable digital transformation among SMEs.

Recommendations

SME managers can take several practical steps to improve their readiness for AI adoption. First, they should focus on strengthening their dynamic capabilities through continuous digital learning, regular reviews of existing business processes, and experimenting with new technologies. They should also learn to use their available resources more flexibly to respond to changing business needs. Second, entrepreneurial orientation can be encouraged by creating opportunities to test affordable AI applications on a small scale before making major investments. Third, SMEs should pay greater attention to customer needs by regularly collecting customer feedback and using digital tools to identify common service issues and opportunities to offer more personalised services.

In practical terms, SMEs can start their AI adoption journey with simple and affordable applications, assess the benefits they bring to the business, provide the necessary training to employees, and gradually move towards more advanced AI solutions. This step-by-step approach is particularly suitable for SMEs because it considers their financial, technological, and human resource limitations while allowing them to adopt AI at a manageable pace.

The findings highlight the need for more accessible AI literacy programmes and practical digital training opportunities for SMEs. Establishing regional innovation hubs, providing affordable financing options, and encouraging partnerships among universities, technology providers, and business-support organisations could also help SMEs become more confident in adopting AI. In addition, policymakers should consider developing training materials in local languages and organising practical demonstrations that address the actual needs and challenges faced by SMEs in regional areas. Such initiatives would make AI knowledge and resources more accessible and help businesses understand how these technologies can be applied in their day-to-day operations.

Limitations and Future Research

Despite its contributions, this study has several limitations that should be considered when interpreting the findings. First, the research was conducted only among SMEs in Sri Lanka's Eastern Province. Therefore, the findings may not fully represent the experiences of SMEs operating in other provinces or across the country as a whole.

Second, the sample consisted of 140 respondents. Although this sample provided a basis for the statistical analyses, it may not fully reflect the diversity of SMEs in terms of business sectors, organisational sizes, ownership structures, and levels of digital maturity.

Third, the study used purposive sampling, meaning that respondents were selected based on their relevance to the research rather than through a random sampling process. While this approach helped the researcher reach respondents with relevant business knowledge and experience, it limits the extent to which the findings can be generalised to the entire SME population.

Fourth, the study relied on data collected through self-administered questionnaires. As a result, the responses may have been influenced by individual perceptions, personal experiences, or the tendency of respondents to provide answers they consider appropriate. The use of a single data collection method may also introduce common-method bias.

Finally, the cross-sectional research design collected data at a single point in time. Therefore, it is difficult to establish the direction of the relationships identified in the study. For example, while stronger organisational capabilities may encourage AI adoption, the experience of adopting AI may also help businesses develop their capabilities over time.

Future Research

Future research should expand the geographical coverage to include SMEs from different provinces and compare businesses operating in urban, semi-urban, and rural areas. Larger samples and probability-based sampling methods could improve the generalisability of the findings. Longitudinal and mixed-method approaches would also provide deeper insights into how organisational capabilities influence AI adoption over time and how business owners make technology-related decisions. In addition, future studies should consider external factors such as government support, digital infrastructure, financial access, and regulatory conditions. Examining different business sectors would further help identify whether the influence of dynamic capability, entrepreneurial orientation, and customer-centric systems varies across industries. These directions would contribute to a broader understanding of AI adoption among SMEs in Sri Lanka.

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