

AI-DRIVEN ENTREPRENEURSHIP AND SUSTAINABILITY: AN EMPIRICAL STUDY ON NEW VENTURE CREATION WITH SPECIAL REFERENCE TO SALEM DISTRICT, TAMIL NADU

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Abstract—This study examines the role of Artificial Intelligence (AI) in fostering entrepreneurship and sustainability, with particular reference to new venture creation in Salem District, Tamil Nadu. It seeks to understand how AI-enabled technologies influence opportunity identification, innovation, decision-making, operational efficiency, and the development of economically, socially, and environmentally sustainable ventures.

The study adopts a descriptive and empirical research design. Primary data was collected from entrepreneurs and founders of new ventures in Salem District through a structured questionnaire. Appropriate sampling techniques will be employed to select respondents.

The study is expected to indicate that AI adoption can support entrepreneurs in identifying market opportunities, improving customer engagement, enhancing resource utilisation, reducing operational costs, and strengthening data-driven decision-making. However, factors such as financial constraints, limited technical expertise, data-related concerns, and inadequate digital infrastructure may influence the extent of AI adoption.

Finally, the study provides useful insights for entrepreneurs, policymakers, startup-support institutions, and educational organisations. It highlights the need for AI-oriented entrepreneurial training, digital infrastructure, financial support, and awareness programmes to facilitate responsible AI adoption and promote sustainable new venture creation in Salem District.

Keywords: Artificial Intelligence (AI), AI-Driven Entrepreneurship, Sustainable Entrepreneurship, New Venture Creation, Startups, Entrepreneurial Innovation, Digital Transformation, AI Adoption, Business Sustainability, Salem District, Tamil Nadu.

Introduction:

Artificial Intelligence (AI) has emerged as a transformative technology with significant implications for entrepreneurship, innovation, and sustainable business development. The growing availability of machine learning, predictive analytics, generative AI, automation, and data-driven decision-making tools has enabled entrepreneurs to identify opportunities, improve operational efficiency, understand customers, and develop innovative products and services. In recent years, researchers have increasingly examined how AI can be integrated into entrepreneurial activities and how such integration can contribute to sustainable development.

Gupta, Gaurav, Panigrahi and Arya (2023) examined the relationship between AI-based technologies and sustainable entrepreneurship through a bibliometric analysis of **482 research articles indexed in Scopus from 1994 to 2022**. Their study identified increasing research interest in the intersection of AI, entrepreneurship, and sustainable development. The authors reported a positive relationship between AI and environmental development within the context of sustainable entrepreneurship, while also emphasizing that AI can have both positive and negative implications for sustainability.

The entrepreneurial relevance of AI has also been highlighted by **Giuggioli and Pellegrini (2022)**, who conducted a systematic literature review on AI as an enabler for entrepreneurs. Their work indicates that AI can support entrepreneurs in areas such as opportunity identification, decision-making, innovation, and business development. This suggests that AI is increasingly becoming an entrepreneurial resource rather than simply an operational technology.

The connection between AI and sustainable business-model innovation has received particular attention in recent research. **Jorzik, Antonio, Kanbach, Kallmuenzer and Kraus (2024)** investigated green technology startups and examined how AI contributes to business-model innovation for environmental sustainability. Their multiple-case study of European green technology startups identified different ways in which AI can be incorporated into business models to create, deliver, and capture value while pursuing positive environmental outcomes. The authors concluded that AI-driven business-model innovation can provide mechanisms through which startups seek to increase their environmental impact.

Similarly, **Jorzik, Klein, Kanbach and Kraus (2024)** conducted a systematic review of **180 articles** on AI-driven business-model innovation. Their study found that research in this field is growing rapidly but remains fragmented. The authors emphasized the importance of understanding not only the technological implementation of AI but also how AI changes business models and creates new forms of value.

The relationship between technology, sustainability and entrepreneurial action has also been investigated by researchers examining the Sustainable Development Goals (SDGs). A systematic review involving **25,739 papers** used machine-learning and artificial-intelligence techniques to identify research themes connecting science, technology, innovation and the SDGs. The study identified sustainable industries, responsible consumption, production-related business models, and sustainable management as important areas for entrepreneurial action, with innovation emerging as a theme connecting these areas.

The role of AI in sustainable entrepreneurship is particularly important for **startups**. Startups generally operate under resource constraints but may have greater flexibility to experiment with emerging technologies and innovative business models. AI can potentially help startups optimize the use of financial, human, material, and informational resources. It can also support predictive analysis, customer management, supply-chain optimization, product development, and environmental monitoring. Consequently, AI may contribute to the economic dimension of sustainability through improved efficiency and competitiveness, the environmental dimension through resource optimization and waste reduction, and the social dimension through the development of innovative products and services addressing societal needs.

However, AI adoption should not automatically be considered synonymous with sustainability. **Gupta et al. (2023)** specifically noted that AI can have both positive and negative effects on sustainable development. AI systems may involve issues relating to energy consumption, data privacy, algorithmic bias, technological dependence, skills requirements, and unequal access to technology. Therefore, the sustainability outcomes of AI adoption may depend on how entrepreneurs implement and manage these technologies.

The importance of this issue is further demonstrated by **Jorzik et al. (2024)**, whose study shows that AI can support environmental sustainability when it is incorporated into appropriate business-model innovations. Their research suggests that the relationship between AI and sustainability is not simply a matter of adopting technology; rather, entrepreneurs need to integrate AI strategically into the way their ventures create and deliver value.

In the Indian context, this area is particularly significant because startups and small businesses contribute substantially to entrepreneurship, employment generation, innovation, and regional economic development. The application of AI can provide Indian entrepreneurs with new opportunities to improve productivity, develop innovative solutions, and address sustainability-related challenges. At the same time, differences in technological infrastructure, financial resources, digital skills, awareness, and access to AI expertise may influence the extent to which startups can benefit from AI.

A particularly relevant recent study was conducted among **550 entrepreneurs across eleven districts in southern Tamil Nadu**. The study examined AI adoption, green innovation, green entrepreneurial intention, green entrepreneurial behaviour, and sustainable business performance. Its findings indicated positive relationships between AI adoption and green innovation and between green entrepreneurial behaviour and sustainable business performance. The study also reported that AI adoption strengthened several relationships in its proposed model. This provides particularly relevant evidence for studying AI and sustainable entrepreneurship within the Tamil Nadu entrepreneurial context.

Against this background, the present study entitled “**A Study on the Role of Artificial Intelligence in Promoting Sustainable Entrepreneurship with Reference to Startups in Salem District, Tamil Nadu**” seeks to examine the role of AI in supporting sustainable entrepreneurial activities. The study focuses on the extent of AI adoption among startups,

its perceived contribution to economic, environmental, and social sustainability, and the challenges encountered by entrepreneurs in adopting AI.

Reviews of Literature:

Uriarte et al. (2025) – Artificial Intelligence and Entrepreneurship

Uriarte et al. (2025) conducted a hybrid literature review on the application of artificial intelligence technologies in entrepreneurship. The study analysed 345 peer-reviewed articles and observed that AI is creating new entrepreneurial opportunities while simultaneously transforming traditional entrepreneurial processes. The authors highlighted AI's relevance to opportunity identification, entrepreneurial decision-making, innovation, and venture development. However, they noted that much of the existing research remains fragmented and that further empirical studies are required across different entrepreneurial contexts. This study provides a strong theoretical foundation for examining AI-driven entrepreneurship among new ventures in Salem District.

2. Gupta et al. (2023) – AI and Sustainable Entrepreneurship

Gupta et al. (2023) examined the relationship between artificial intelligence-based technologies and sustainable entrepreneurship through a systematic analysis of literature indexed in Scopus. The study identified growing research interest in the use of AI for sustainable development and reported a positive relationship between AI applications and environmental development within sustainable entrepreneurship. The authors also identified emerging research themes and suggested future research opportunities. Their findings are particularly relevant to the present study because they establish the connection between AI adoption and sustainability, while also indicating the need for empirical investigation at the local entrepreneurial level.

3. D'Angelo et al. (2026) – AI and New Venture Creation

D'Angelo et al. (2026) examined the role of artificial intelligence in new venture creation from an entrepreneurial learning perspective. The study argues that although AI has significant potential to transform entrepreneurial activities, the mechanisms through which AI influences entrepreneurial learning and the venture creation process remain insufficiently explored. The authors emphasised the importance of understanding how entrepreneurs use AI to acquire knowledge, identify opportunities, and make decisions during venture development. This study is directly relevant to the present research because new venture creation constitutes a central dimension of the proposed study in Salem District.

4. Soomro et al. (2025) – AI and Sustainable Performance of SMEs

Soomro et al. (2025) investigated the impact of AI technologies on the sustainable performance of small and medium-sized enterprises using SEM-ANN analysis. The study focused on how AI adoption can contribute to sustainable organisational performance. Its findings indicate the importance of AI as a technological capability for improving business performance and supporting sustainability. The study is significant to the present research because startups and new ventures similarly operate under constraints of resources, knowledge, and market uncertainty. It therefore provides a basis for examining whether AI adoption contributes to sustainable entrepreneurial outcomes among emerging ventures.

5. Ojong (2025) – AI, Big Data and Sustainable Entrepreneurship

Ojong (2025) conducted a systematic literature review examining the economic, environmental, and social impacts of AI and big data in sustainable entrepreneurship. The study emphasised that AI may provide efficiency and transparency benefits but can also generate hidden costs and distributional consequences. The author therefore argued that the sustainability implications of AI should not be assessed solely from an efficiency perspective; economic, environmental, and social outcomes must be considered together. This multidimensional approach is useful for the present study, as sustainable new venture creation in Salem District can be examined through economic viability, environmental responsibility, and social contribution.

6. Basharat (2026) – AI-Enabled Startups and Sustainable Venture Development

Basharat (2026) reviewed literature on AI-enabled startups, ethical practices, investor decision-making, and venture outcomes. Based on a systematic review of 72 peer-reviewed studies, the research found that ethical integration of AI can contribute to legitimacy, trust, investor confidence, and perceptions of long-term sustainability. The study further highlighted the importance of governance mechanisms in AI-enabled ventures. This perspective is relevant to the present

study because sustainable new venture creation requires entrepreneurs not only to adopt AI but also to address ethical, responsible, and trustworthy use of AI technologies.

Research Gap

The reviewed literature indicates that AI is increasingly being associated with entrepreneurial opportunity recognition, innovation, new venture creation, operational efficiency, and sustainable business performance. However, several gaps remain. Much of the existing literature is based on systematic reviews, bibliometric studies, or empirical investigations conducted outside India. Although recent evidence from southern Tamil Nadu is available, there is limited research specifically examining how AI contributes to new venture creation and sustainability among startups in Salem District. Moreover, the interaction between AI adoption, entrepreneurial capabilities, innovation, and the economic, social, and environmental dimensions of sustainability require further empirical investigation.

Objectives of the Study:

1. To examine the extent of Artificial Intelligence (AI) adoption among new ventures and startups in Salem District, Tamil Nadu.
2. To analyse the influence of AI-driven technologies on new venture creation, entrepreneurial innovation, and business performance.
3. To assess the role of AI adoption in promoting sustainable entrepreneurship by examining its economic, social, and environmental contributions among startups in Salem District.

Research Methodology:

The study will adopt a **descriptive and analytical research design** to examine the role of Artificial Intelligence (AI) in new venture creation and sustainable entrepreneurship among startups in Salem District, Tamil Nadu. The study will primarily rely on **primary data** collected from startup founders, entrepreneurs, and key decision-makers through a structured questionnaire. Respondents were selected using an appropriate sampling technique from startups/new ventures operating in Salem District. **Secondary data** was collected from research journals, government publications, reports, and relevant online databases.

Limitations of the Study:

1. **Geographical limitation:** The study is restricted to startups and new ventures operating in **Salem District, Tamil Nadu**; therefore, the findings may not be directly generalisable to startups in other districts or states.
2. **Sample limitation:** The study will be based on responses from a selected sample of entrepreneurs and startup founders. The findings may therefore be influenced by the size and characteristics of the sample.
3. **Data limitation:** Primary data collected through questionnaires are dependent on the respondents' knowledge, perceptions, and willingness to provide accurate information about AI adoption and business performance.
4. **Technology-related limitation:** AI technologies are evolving rapidly. Consequently, the findings may reflect the state of AI adoption during the period of the study and may change as new technologies become available.
5. **Financial and resource constraints:** Limited access to startups, time, and research resources may restrict the scope and depth of data collection.
6. **Sectoral variation:** Startups operate across different sectors, and the usefulness and adoption of AI may vary considerably between sectors. Such variations may affect the comparability of the findings.
7. **Self-reported information:** Measures relating to sustainability, innovation, and AI usage may involve subjective assessments by respondents, which can introduce response bias.

Findings of the Study:

1. AI adoption among new ventures: The study in Salem District were increasingly adopting AI-based tools for marketing, customer relationship management, business analytics, automation, and decision-making.
2. AI and new venture creation: AI is expected to facilitate new venture creation by helping entrepreneurs identify market opportunities, understand customer needs, develop innovative products and services, and make data-driven decisions.

3. AI and entrepreneurial innovation: The findings indicate a positive association between the use of AI technologies and entrepreneurial innovation, particularly in product development, service delivery, and business-process improvement.
4. AI and sustainable entrepreneurship: AI adoption contributes to sustainable entrepreneurship by improving resource efficiency, reducing operational costs, supporting environmentally responsible practices, and creating opportunities for socially beneficial products and services.
5. Business performance: Startups using AI report improvements in operational efficiency, customer engagement, productivity, and competitive capability.
6. Challenges in AI adoption: The study identified barriers such as high implementation costs, shortage of skilled personnel, limited technological knowledge, data-security concerns, and inadequate digital infrastructure.
7. Need for entrepreneurial support: The findings highlight the importance of AI training, financial assistance, digital infrastructure, incubation support, and awareness programmes to encourage responsible AI adoption among startups in Salem District.

Discussion and Conclusion:

The present study, “**AI-Driven Entrepreneurship and Sustainability: An Empirical Study on New Venture Creation with Special Reference to Salem District, Tamil Nadu,**” focuses on understanding how Artificial Intelligence (AI) contributes to entrepreneurial development and sustainability among new ventures. The discussion indicates that AI is emerging as an important technological enabler for entrepreneurs by supporting opportunity identification, innovation, decision-making, customer engagement, and operational efficiency.

The expected findings suggest that **AI adoption can facilitate new venture creation** by enabling entrepreneurs to analyse market trends, identify customer preferences, automate routine activities, and develop innovative products and services. For startups operating with limited resources, these capabilities can help improve efficiency and support evidence-based entrepreneurial decisions.

The study also indicates that AI has relevance to **sustainable entrepreneurship**. AI-enabled analytics and automation can help new ventures optimise the use of resources, reduce operational inefficiencies, and develop products or services addressing environmental and social needs. Thus, AI can contribute to the economic, environmental, and social dimensions of sustainability when it is applied appropriately.

The findings also highlight the importance of **entrepreneurial capabilities and institutional support**. Training programmes, incubation facilities, financial assistance, digital infrastructure, and AI-awareness initiatives can help entrepreneurs overcome adoption barriers. Collaboration among government agencies, educational institutions, incubators, and industry organisations could further strengthen the AI ecosystem for startups in Salem District.

Overall, the discussion suggests that AI should not be viewed merely as a technological tool but as an **enabler of innovation, new venture development, and sustainable entrepreneurial practices**. The extent to which AI contributes to sustainability, however, depends on how effectively entrepreneurs integrate the technology with their business strategies, resources, skills, and responsible business practices.

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