

Available online @ www.iaraindia.com
SELP Journal of Social Science - A Blind Review & Refereed Quarterly Journal
ISSN: 0975-9999 (P) 2349-1655 (O) Impact Factor: 5.650 (I2OR),
4.111 (COSMOS), 2.5 (JIF), 2.77 (NAAS)
Volume XVII, Issue 67, October – December 2026
Formally UGC Approved Journal (46622), © Author

A STUDY ON THE IMPACT OF ARTIFICIAL INTELLIGENCE ON THE GROWTH AND SUCCESS OF START-UPS IN INDIA

Dr. P. YUGASHREE

Assistant Professor

Department of Commerce

Urumbu Dhanalakshmi College, Tiruchirappalli

ABSTRACT

Artificial Intelligence (AI) has emerged as an important technological force influencing innovation, entrepreneurship and business growth. Indian start-ups are increasingly adopting AI for customer engagement, automation, data-driven decision-making, product development and operational efficiency. This study examines the impact of Artificial Intelligence on the growth and success of start-ups in India using secondary data from government reports, industry studies and published research. The study focuses on the major applications, benefits, challenges and opportunities associated with AI adoption by start-ups. The findings indicate that AI can improve productivity, customer experience, innovation and scalability, while barriers such as finance, skilled talent, data availability, cybersecurity, ethical concerns and uncertain returns continue to affect adoption. The study concludes that responsible AI adoption, entrepreneurial capabilities, institutional support and access to technology can strengthen the competitiveness and sustainable growth of Indian start-ups.

KEYWORDS: Artificial Intelligence, Start-ups, Entrepreneurship, Innovation, Digital Transformation, Business Growth, India.

INTRODUCTION

Entrepreneurship and start-ups have become important contributors to innovation, employment generation and economic development in India. The Indian start-up ecosystem has expanded beyond major metropolitan centres, with increasing participation from Tier-II and Tier-III cities. According to the Government of India's Start-up India ecosystem reports, innovation is increasingly being driven by areas such as artificial intelligence, deep technology, and clean technology, advanced manufacturing and digital solutions. Artificial Intelligence has emerged as one of the most influential technologies in this transformation. AI enables machines and software systems to perform activities that traditionally require human intelligence, including learning, prediction, language processing, pattern recognition and decision-making. For start-ups, these capabilities can be particularly valuable because young firms generally operate with limited financial, human and technological resources. AI can help start-ups automate repetitive activities, analyse large volumes of customer information, personalise products and services, improve marketing decisions, detect business opportunities and reduce operational costs. NASSCOM identifies enhancement of products and services, automation of internal processes and predictive analysis as important business value propositions of AI. The Indian technology ecosystem is also experiencing growing interest in AI-led innovation. NASSCOM's research indicates that AI is increasingly influencing technology spending and business transformation, while its studies of Indian enterprises identify operational efficiency, customer experience and revenue growth among the major motivations for AI adoption.

STATEMENT OF THE PROBLEM

Indian start-ups operate in a highly competitive environment where innovation, speed, customer understanding and efficient use of resources are critical for survival. At the same time, AI technologies are developing rapidly and creating new opportunities for businesses. AI adoption is not without challenges. Start-ups may face difficulties related to investment requirements, availability of skilled professionals, data quality, cybersecurity, technology infrastructure, ethical issues and uncertainty regarding return on investment. NASSCOM's survey of Indian enterprises identifies technology and data, ability to demonstrate ROI, talent and culture, and trust, regulation and ethics as important barriers to AI adoption. These challenges are particularly relevant to start-ups because early-stage enterprises generally have fewer resources than established organisations. There is a need to examine the role of AI in improving start-up growth while also identifying the major challenges that entrepreneurs need to overcome.

OBJECTIVES OF THE STUDY

- To examine the role of Artificial Intelligence in the growth of Indian start-ups.
- To identify the major applications of AI in start-up businesses.
- To analyse the benefits of AI adoption for start-ups.
- To identify the major challenges faced by start-ups in adopting AI.
- To examine the opportunities created by AI for Indian entrepreneurs.
- To suggest measures for effective and responsible AI adoption among start-ups.

RESEARCH METHODOLOGY**Research Design**

The study adopts a descriptive and analytical research design.

Nature of Data

The study is based entirely on secondary data. No primary questionnaire responses have been fabricated or assumed.

Information has been collected from - Start-up India and Government of India reports, NASSCOM reports and publications Industry reports, Research publications, Institutional reports, Relevant academic literature and online sources

The Government of India's Startup India ecosystem material highlights the growing importance of AI and deep-tech innovation within the Indian start-up ecosystem.

Period of Study

The study primarily considers recent developments and published evidence concerning AI and the Indian start-up ecosystem, with emphasis on developments up to 2025–2026.

Method of Analysis

The information is analysed through thematic analysis under the following dimensions: AI applications, Operational efficiency, Customer experience, Innovation, Revenue and scalability, Challenges, Entrepreneurial, opportunities and Institutional support

REVIEW OF LITERATURE

NASSCOM and EY – AI Adoption in Indian Enterprises

NASSCOM and EY examined AI adoption among more than 500 CXOs in India. The study found that approximately 60% of CXOs believed AI would disrupt their businesses within three years, while only around 25% had deployed AI solutions at the time of the study. Operational efficiency, customer experience and revenue growth were identified as major reasons for implementing AI.

The study also identified technology and data, ROI, talent and culture, and trust, regulation and ethics as important barriers to AI adoption. These findings demonstrate that technological availability alone does not guarantee successful AI implementation.

NASSCOM – AI for Good

NASSCOM's AI for Good initiative examined AI solutions addressing complex social and economic challenges in areas such as agriculture, healthcare, education, transportation,

governance and public utilities. The initiative demonstrates that AI applications can extend beyond commercial purposes and contribute to broader social development.

Start-up India – Indian Start-up Ecosystem

Start-up India's recent national ecosystem reporting highlights the expansion of India's start-up ecosystem beyond major cities and the increasing role of emerging technologies. AI, deep technology and digital solutions are identified among the areas through which Indian start-ups are addressing challenges in sectors such as healthcare, agriculture, mobility, sustainability and financial inclusion.

NASSCOM – Indian Technology Start-up Landscape

NASSCOM's analysis of the Indian technology start-up landscape indicates continued evolution in start-up formation, technology capabilities, investor participation and sectoral diversification. At the same time, funding cycles and regulatory developments influence the operating environment for technology start-ups.

Research Gap

Existing reports provide considerable information about AI adoption, enterprise transformation and the Indian start-up ecosystem. However, there remains a need to connect these developments specifically with the growth and success dimensions of start-ups, particularly from an entrepreneurship and management perspective.

This study therefore integrates the available evidence to examine how AI can influence start-up growth through operational efficiency, customer engagement, innovation, decision-making and scalability while considering the associated challenges.

ARTIFICIAL INTELLIGENCE AND START-UPS

Artificial Intelligence refers to technologies that enable computer systems to perform activities associated with human intelligence. Important AI technologies include: Machine Learning, Natural Language Processing, Generative AI, Computer Vision, Speech Recognition, Predictive Analytics, AI-based Recommendation Systems and Intelligent Automation

For start-ups, these technologies can be integrated into both internal business processes and customer-facing products.

IMPACT OF AI ON START-UP GROWTH

Improvement in Operational Efficiency

Start-ups need to manage limited resources efficiently. AI can automate repetitive tasks and reduce the time required for routine activities.

For example, an AI-based Chatbot can respond to frequently asked customer questions without requiring continuous human intervention. Similarly, AI-supported data processing can reduce manual work. Improved efficiency can allow entrepreneurs and employees to focus more on innovation, customer relationships and strategic activities.

Improved Customer Experience

Customer experience is a major factor influencing the success of modern businesses. AI enables start-ups to understand customer preferences and provide personalised interactions. AI-based recommendation systems, chat bots, personalised marketing and predictive customer analytics can help businesses deliver more relevant products and services.

NASSCOM's research identifies customer experience as one of the important business motivations for AI implementation.

Innovation and Product Development

AI enables start-ups to develop innovative products and services. Entrepreneurs can use AI to identify customer problems, analyse market information and create technology-based solutions. The growing Indian deep-tech ecosystem demonstrates how start-ups are increasingly developing solutions in areas such as healthcare, education, agriculture, sustainability and financial inclusion.

Data-Driven Decision Making

Entrepreneurs frequently make decisions under conditions of uncertainty. AI and analytics can support decision-making by identifying patterns from large amounts of information.

AI can assist in Sales forecasting, Demand prediction, Customer analysis, pricing decisions, Inventory planning, Risk assessment and Market analysis. Thus, AI can improve the quality and speed of managerial decisions.

Cost Reduction

Automation can reduce the time and resources required for selected business activities. For resource-constrained start-ups, this may contribute to better utilisation of financial and human resources. AI should not automatically be considered a cost-saving technology in every situation. Initial investment, software costs, data preparation, infrastructure and employee training may increase short-term expenses.

Business Scalability

Scalability is a key characteristic of successful start-ups. AI-enabled systems can support growing customer volumes without requiring proportional increases in manual effort in certain processes.

For example, an automated customer support system can handle a large number of routine queries simultaneously. AI can support start-ups in moving from small-scale operations towards larger markets.

CHALLENGES OF AI ADOPTION BY START-UPS**High Initial Investment**

AI adoption may require expenditure on software, computing infrastructure, data systems and professional expertise. Early-stage start-ups may find such investment difficult.

Shortage of Skilled Talent

AI requires professionals with knowledge of data science, machine learning, software development and business applications. A shortage of appropriate talent may restrict adoption.

Data Availability and Quality

AI systems depend heavily on data. Poor-quality, insufficient or fragmented data can reduce the effectiveness of AI applications.

Cyber security and Privacy

The use of customer and business data creates privacy and cybersecurity risks. Start-ups must therefore implement appropriate safeguards for data protection.

Ethical Concerns

AI-based decisions may create concerns regarding bias, transparency, accountability and fairness. Responsible AI practices are therefore essential.

Difficulty in Measuring ROI

One of the important challenges is determining whether investment in AI generates sufficient financial and strategic returns. Start-ups should establish measurable objectives before implementing AI.

Resistance to Organisational Change

Employees may be concerned about automation and changes in job roles. Successful AI implementation therefore requires employee participation, training and change management.

OPPORTUNITIES FOR INDIAN START-UPS

AI creates several opportunities for Indian entrepreneurs.

AI-Based Business Models

Entrepreneurs can develop products and services specifically using AI technologies, including AI as eservice solutions.

Rural and Inclusive Entrepreneurship

AI can help develop solutions for agriculture, education, healthcare and financial inclusion. This provides opportunities for entrepreneurs outside major metropolitan markets.

Global Market Opportunities

AI-enabled products can potentially serve customers beyond India. Digital products can be scaled internationally with relatively lower physical distribution requirements.

Employment and New Skills

Although automation may change some job roles, AI adoption can also create demand for new skills in areas such as data analytics, AI development, prompt engineering, AI governance and digital product management.

Industry–Academia Collaboration

Universities and start-ups can collaborate in research, incubation, innovation and skill development. Such partnerships can strengthen India's entrepreneurial ecosystem.

GOVERNMENT AND INSTITUTIONAL SUPPORT

Government and institutional support can play an important role in strengthening AI-based entrepreneurship. Start-up India's ecosystem initiatives focus on areas such as institutional support, innovation and entrepreneurship, incubation and mentorship, funding, capacity building and sustainable development. Recent Start-up India reporting also indicates that India's start-up ecosystem is expanding into Tier-II and Tier-III locations and that emerging technologies such as AI are increasingly contributing to entrepreneurial innovation.

Institutional support should focus on:

- AI incubation centres
- Affordable access to computing and technology
- Entrepreneurial skill development
- AI and data science training
- Start-up funding
- Industry–academic collaboration
- Mentorship programmes
- Responsible AI frameworks
- Cybersecurity awareness
- Support for rural and women entrepreneurs

FINDINGS OF THE STUDY

Based on the analysis of secondary sources, the major findings are:

- Artificial Intelligence is becoming an important driver of business innovation.
- AI can improve operational efficiency by automating repetitive activities.
- Customer experience is an important area where AI creates business value.
- AI supports data-driven decision-making for entrepreneurs.
- AI provides opportunities for product and service innovation.
- AI can support business scalability when appropriately integrated into business processes.
- Lack of skilled professionals remains an important challenge.
- Data quality and availability influence the effectiveness of AI systems.
- Cybersecurity, privacy and ethical issues require greater attention.
- Start-ups need to evaluate the financial and strategic return on AI investments.
- AI creates opportunities for entrepreneurship in sectors including healthcare, agriculture, education, finance and sustainability.
- Government, educational institutions, incubators and industry can collectively strengthen India's AI-based start-up ecosystem.

SUGGESTIONS

Based on the findings, the following suggestions are offered:

Develop AI Skills

Entrepreneurs and employees should receive continuous training in AI, data analytics and digital technologies.

Adopt AI According to Business Needs

Start-ups should not adopt AI merely because it is a current trend. Technology selection should be based on clearly identified business problems.

Start Small and Scale Gradually

Start-ups can initially implement AI in selected functions such as customer service, marketing or forecasting and expand after evaluating results.

Strengthen Data Governance

Proper systems should be developed for data quality, privacy, security and responsible data usage.

Promote Responsible AI

Start-ups should ensure transparency, fairness, accountability and human oversight in AI-based decision-making.

Improve Access to Funding

Financial institutions, investors and government agencies should provide suitable funding mechanisms for technology-oriented start-ups.

Strengthen Incubation Support

Incubators should provide entrepreneurs with technical mentoring, market access, industry connections and AI infrastructure.

Encourage Women and Rural Entrepreneurs

AI-based entrepreneurship programmes should reach women entrepreneurs and start-ups located in Tier-II and Tier-III cities.

CONCLUSION

Artificial Intelligence is transforming the entrepreneurial environment and creating significant opportunities for Indian start-ups. Its contribution extends beyond automation to customer experience, product innovation, predictive analysis, decision-making and business scalability. The study indicates that AI can become a strategic resource for start-ups when it is aligned with clearly defined business objectives. At the same time, successful adoption depends on skilled human resources, quality data, financial capacity, cyber security, responsible governance and organisational readiness. India's expanding start-up ecosystem provides a favourable environment for AI-led entrepreneurship. Government initiatives, incubation centres, educational institutions, investors and industry organisations have an important role in creating an ecosystem in which entrepreneurs can access technology, finance, skills and mentorship. The future success of AI-driven start-ups will therefore depend not simply on the availability of AI technologies but on the ability of entrepreneurs to combine technology, innovation, human skills and responsible management. AI should consequently be viewed not merely as an automation tool but as a strategic enabler of innovation, competitiveness and sustainable entrepreneurial growth in India.

LIMITATIONS OF THE STUDY

- The study is based on secondary data and does not include primary survey responses.
- The study depends on the availability and reliability of published reports and studies.
- AI technologies are developing rapidly, and therefore the findings may require periodic updating.
- The study provides a broad Indian perspective and does not analyse individual start-ups in detail.
- The study does not statistically test a causal relationship between AI adoption and start-up performance.

SCOPE FOR FUTURE RESEARCH

Future studies may undertake primary research among Indian start-up founders and managers to examine the relationship between AI adoption and measurable business outcomes.

Future researchers may investigate:

- AI adoption among women entrepreneurs
- AI adoption among rural start-ups
- Generative AI and entrepreneurial performance
- AI and start-up financial performance
- AI adoption among MSMEs
- AI and customer satisfaction
- AI-based marketing and consumer behaviour
- AI and sustainable entrepreneurship
- AI adoption in Tier-II and Tier-III cities

A future empirical study may use variables such as AI adoption level, operational efficiency, innovation capability, customer satisfaction, revenue growth and entrepreneurial performance.

REFERENCES

1. NASSCOM. (2025). Enterprise Experiments with AI Agents – 2025 Global Trends. NASSCOM.
2. NASSCOM. (2025). Road to Recovery: Indian Tech Start-up Landscape 2024. NASSCOM.
3. NASSCOM. (2025). Technology Sector in India: Strategic Review 2025. NASSCOM.
4. NASSCOM. (2025). Transforming India's Technology SMEs for a Digital Future: Navigating the AI Frontier. NASSCOM.
5. NASSCOM. (n.d.). AI for Good Compendium. NASSCOM.
6. NASSCOM. (n.d.). Artificial Intelligence: Why businesses need to pay attention to artificial intelligence? NASSCOM.
7. NASSCOM. (n.d.). Can enterprise intelligence be created artificially? A survey of Indian enterprises. NASSCOM & EY.
8. Paramasivan. C (2025) A Comparative Study of Women Entrepreneurs' Demographic and Entrepreneurial Profiles in Tamil Nadu, Kerala, and Karnataka, Journal of Emerging Technologies and Innovative Research (JETIR) Volume 12, Issue 10, (P) 321 – 326.
9. Ravichandran. G., & Paramasivan. C (2026) A study on the impact of AI – Driven Personalization in Digital Marketing on Consumer Satisfaction, DOAJ Listed Journal of Applied Taxation and Policy, 2(2), 46-55.
10. Startup India. (2026). Startup India Ecosystem and National Report. Government of India.
11. Startup India. (2026). States' Startup Ecosystem Ranking 5.0: National Report. Government of India.
12. Startup India. (n.d.). Market Research: Artificial Intelligence. Government of India.