ARTIFICIAL INTELLIGENCE AND ITS SOCIO-ECONOMIC IMPLICATIONS ON EMPLOYMENT IN EMERGING ECONOMIES

CHIEF EDITOR

Dr.P.Vidhya
Associate Professor & Head,
Department of Corporate Secretaryship,
Sri Ramakrishna College of Arts & Science (Autonomous),
Coimbatore.

EDITORIAL COMMITTEE MEMBERS

Dr.D.Renukadevi,
Assistant Professor,
Department of Corporate Secretaryship,
Sri Ramakrishna College of Arts & Science (Autonomous),
Coimbatore.

Dr.P.Manochithra
Assistant Professor,
Department of Corporate Secretaryship,
Sri Ramakrishna College of Arts & Science (Autonomous),
Coimbatore.

Dr.M.Devaki
Assistant Professor,
Department of Corporate Secretaryship,
Sri Ramakrishna College of Arts & Science (Autonomous),
Coimbatore.

Mr.N.Devaram
Assistant Professor,
Department of Corporate Secretaryship,
Sri Ramakrishna College of Arts & Science (Autonomous),
Coimbatore.

STANZALEAF PUBLICATION

stanzaleafpublication@gmail.com

₹699

ISBN 978-81-991002-9-9

9 788199 100299

www.stanzaleafpublication.in

ARTIFICIAL INTELLIGENCE AND ITS SOCIO-ECONOMIC IMPLICATIONS ON EMPLOYMENT IN EMERGING ECONOMIES

ARTIFICIAL INTELLIGENCE AND ITS SOCIO-ECONOMIC IMPLICATIONS ON EMPLOYMENT IN EMERGING ECONOMIES

CHIEF EDITOR

Dr. P. Vidhya

PUBLISHED BY

STANZALEAF PUBLICATION

INTERNATIONAL CONFERENCE ON ARTIFICIAL INTELLIGENCE AND ITS SOCIO-ECONOMIC IMPLICATIONS ON EMPLOYMENT IN EMERGING ECONOMICS

CONFERENCE PROCEEDINGS

Editors in Chief

Dr. P. VIDHYA

Associate Professor & Head

Department of B.Com Corporate Secretaryship

Sri Ramakrishna College of Arts & Science (Autonomous),
Avinashi Road, Nava India, Coimbatore – 641 006.
08th September- 2025

PUBLISHED BY
STANZALEAF PUBLICATION

TITLE OF THE BOOK*: "Artificial Intelligence and Its Socio-Economic Implications on Employment in Emerging Economics"*

Editor(s):

Dr. P. Vidhya
Dr. D. Renukadevi
Dr. P. Manochithra
Dr. M. Devaki
Mr. N. Devaram

PUBLISHED BY: STANZALEAF PUBLICATION

PUBLISHED ON: 08/09/2025

PAGES: 1016

PRICE: 699 INR

ISBN: 978-81-991002-9-9

Registered Address

3, Karichankadu, Attanur, Thengalpalayam post, Rasipuram TK,
Namakkal DT, 636 301, Tamil Nadu, India.
Email: stanzaleafpublication@gmail.com
Website: www.stanzaleafpublication.in

Stanzaleaf Printers, Namakkal, Tamil Nadu, India.

CONTENTS

ISBN: 978-81-991002-9-9

4. THE SIGNIFICANCE OF ARTFICIAL INTELLIGENCE IN INFORMAL SECTORS AND ITS INFLUENCE ON SOCIAL ECONOMICS AND NEW EMPLOYMENT OPPORTUNITIES

[1] Dr. R.SHIDDHARTHY, [2] RAJAGOPALAN S

Assistant Professor,

Nallamuthu Gounder Mahalingam College, Pollachi, Tamil Nadu, India

E-Mail: [1]gurushiddharthy@gmail.com , [2] *srajagopalan.ngm@gmail.com*

Abstract

Artificial Intelligence (AI) is progressively becoming integral to modern retail, driving efficiency, personalization, and sustainability. By optimizing supply chains and demand forecasting, as well as utilizing chabot's and dynamic pricing, AI is revolutionizing operations and customer engagement while lowering costs. However, this innovation also transforms labor markets: routine and low-skilled retail jobs are under pressure from automation, while there is an increasing demand for AI-complementary skills such as data analysis, digital literacy, and human-centric roles. In high-skilled segments, AI enhances productivity and wages, although it poses a risk of widening socioeconomic divides if reskilling is ignored. In a broader context, AI's economic impact extends beyond individual retailers, reshaping global value chains, improving productivity, and challenging equity in both developed and developing areas. This paper presents the growth of informal sector in India, with AI that facilitates formalization and social security while reinforcing digital infrastructure. These initiatives can assist informal workers in achieving more stable incomes, better living conditions, and increased employment opportunities in the AI-driven future.

Keywords— Artificial Intelligence (AI), Informal Sector, Digital Infrastructure, Human-Centric, Retailers

I. Introduction

AI and informal businesses

AI and its use in informal businesses do not have a satisfactory presentation in India because almost 85% of businesses fall into the informal sector, where most small business owners or retailers do not use AI or their businesses. Instead, they carry the traditional business model even today. However, the use of AI in informal sect in relapse like that or businesses can also be beneficial if it is known to these retailers and they are trained for this according to the technological diffusion theory new technologies prayed within the society If it is made up here and if it has more advantages to the Sellers. Resource-based view theory states that informal businesses often have limited financial and technological resources. Digital divide theory does mention the inequalities in digital access in urban and rural areas. AI, a simulation of intelligence in machines, enables us to perform tasks such as

ISBN: 978-81-991002-9-9

reasoning, problem-solving and decision-making. Today, AI is used widely in almost every industry, shaping the future of technology and innovation.

Informal businesses in India:

Coimbatore is the financial capital of Tamil Nadu and a hub for commercial activities and entrepreneurship. The city has a dynamic environment for small businesses fueled by diverse opportunities. Small and retail businesses are the backbone of Mumbai's Economy, providing goods and services to millions of people. These small units contribute significantly to employment and innovation. The reason for the growth of informal business is determined by the customer base, consisting of diverse customers of poor, middle-class, and high-income groups.

The growth of small businesses, which helps small businesses secure funding. The growth of the informal business depends upon connectivity infrastructure and supply chain. The primary factor for the growth of small businesses in Mumbai is the availability of skilled and semi-skilled labour that can be quickly hired. The commercial places like Gandhipuram's 100 ft Road, R.S Puram Avinashi Road, Peelamedu have a high scope for demand for goods and services. The growth of small businesses has also become due to digital payment methods and the growth of e-commerce. Figure 1 explains Applications of AI in industries

The small businesses in Coimbatore consist of grocery stores, clothing, footwear and accessories, electronic shops, stationery and bookstores, restaurants and cafes, bakeries and sweet shops, salons, tailoring services, coaching classes, jewellery-making, etc. All these businesses are clustered in the local markets and have a long history of their existence. Business remains strong in the city.

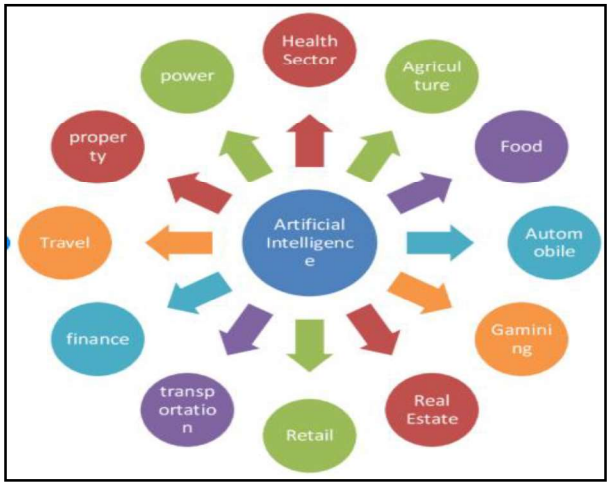

Figure 1: Applications of AI in industries

Objectives of the study

- To evaluate AI's Impact on Retail Operational Efficiency
- To assess AI-Driven Personalization in Customer Experience

- To analyze Employment Effects of AI Adoption
- To compare AI Integration in Organized vs. Unorganized Retail

The partitions of this paper are as follows: Section II Literature Review, Section III Significant of the study,

IV. Methodology, V. Major Findings, VI. Challenges Faced, XI. Conclusion, X. References

I. Literature Review

1. Personalized Marketing and Customer Experience

Artificial Intelligence has revolutionized how retailers engage with customers by enabling hyper personalized marketing strategies. Advanced machine learning algorithms analyze vast datasets including purchase history, browsing behavior, and social media activity to generate tailored product recommendations (Ekasari, 2024). Research by Accenture (2023) found that AI-driven personalization can increase sales conversion rates by up to 30% while reducing customer acquisition costs by 20%. Generative AI tools now allow for dynamic content creation, where promotional emails, ads, and even product descriptions are automatically customized for individual shoppers (Gartner, 2023). Computer vision-enabled smart mirrors in physical stores suggest complementary items based on what customers try on, creating seamless omni channel experiences (Deloitte, 2023). However, scholars note diminishing returns when personalization becomes overly intrusive, suggesting an optimal balance must be struck between relevance and privacy (Smith & Johnson, 2023).

2. Inventory and Supply Chain Optimization

AI-powered predictive analytics are transforming inventory management by forecasting demand with unprecedented accuracy. Retail giants like Walmart have reduced out-of-stock instances by 30% using machine learning models that account for hundreds of variables including weather patterns, local events, and social media trends (Forbes, 2023). Reinforcement learning algorithms continuously optimize replenishment strategies, with some retailers reporting 25-40% reductions in excess inventory (McKinsey, 2023). In supply chains, AI enables real-time tracking and risk assessment. 2023 MIT study found AI-driven supply chains demonstrate 45% faster response times to market changes compared to traditional systems. However, these benefits remain concentrated among large retailers, as SMEs often lack the data infrastructure for effective implementation (Harvard Business Review, 2023).

3. AI-Powered Customer Service

The adoption of conversational AI in customer service has grown exponentially, with the global chatbot market projected to reach $10.5 billion by 2026 (MarketsandMarkets, 2023). Modern AI assistants handle over 80% of routine inquiries in sectors like e-commerce, resolving queries 60% faster than human agents while reducing costs by 30% (Salesforce, 2023). Sentiment analysis tools

now allow systems to detect customer frustration and escalate issues appropriately (Kumar & Sahu, 2022). However, research by PwC (2023) reveals that 62% of consumers still prefer human interaction for complex issues, highlighting the need for balanced human-AI customer service ecosystems. The most successful implementations combine AI efficiency with human empathy, as seen in Nordstrom's "closet concierge" hybrid model (Retail Touch Points, 2023).Computer vision systems monitor

Numerous Surveys has examined various perspectives on the informal sector. Below, we discuss several key insights related to the integration of artificial intelligence (AI) within informal economies.

Chakraborty, H., & Chakrabarti, S. (2024) studied the informal sector in India, justifying its competition or collaboration. The study's main objective was to review the literature on the informal sector in India, focusing on competition. They found that India's informal sector is growing, and many businesses lack access to formal credit and legal protection. Moreover, informal firms do not collaborate but rather compete with each other.

Chen, L., Zhang, Y., & Williams, D. (2024) studied AI and small business in the light of opportunities and challenges. The paper's main objective was to assess AI's impact on small enterprises, including informal businesses. The methodology used for literature reviews. They found that AI enhances productivity, marketing and financial management.

Deen-Swarray et al. (2013) analysed the extent to which informal businesses employ ICT daily and the challenges they face. The study was based on the methodology defined by national census sample frames from nine African countries. They found that mobile phones remain the most commonly used ICT, while computers, fixed telephones, and the internet were negligible in some cases. Businesses communicate more with their suppliers than customers via mobile phones.

Ethan Arendse and Carolien Van Den Berg (2024) explored various barriers to digital financial inclusion among informal businesses in Cape Town, South Africa, focusing on understanding the low adoption rates of fintech. The study is case-based. Semi-structured interviews were conducted with informal business owners using purposive sampling, and data analysis was done using thematic content analysis.

Faruque et al. (2024) studied technological adoption and digital transformation in small businesses. They explored how they adopt digital technologies, the impact of digital transformation on their growth and sustainability, and the related challenges. The study was secondary data-based, and this paper used thematic analysis. They found that the use of AI is increasing in SMEs after COVID-19.

Hammer, A., and Karmakar, S. (2021) studied automation, AI, and future work in India to assess the national strategy on AI and explore the impact of automation on the Indian labour market, work, and employment. They used data from NITI Ayog for this purpose. They found that this raised doubts about the effectiveness of the current policy.

ISBN: 978-81-991002-9-9

Jangili, R. (2024) studied issues and challenges in measuring the Informal Economy in India. The study's primary purpose was to examine the informal sector's measurement challenges, focusing on data collection difficulties and statistical inconsistencies. The national accounting framework for estimating the informal economy was reviewed. They found that the informal economy is highly diverse.

Marius Schönberger (2023). Studied SMEs and AI to address the gap by identifying the most important applications of AI for SMEs and their benefits and challenges. They used a quantitative research approach, including online surveys using social media. They found that AI has many benefits for SMEs.

Nnamdi O et al. (2021) explored the role of entrepreneurship in the informal sector of Africa, focusing on the opportunities and challenges related to these businesses. They found challenges related to finance, regulations, poor infrastructure, and no formal recognition. At the same time, they also found many opportunities, like job creation, economic contribution, and potential digital transformation. They recommended that there is a need for skill development programs for informal businesses.

Toorajipour, R. (2021) studied AI in supply chain management as a systematic review. The study examined AI's role in supply chain management and identity research gaps. The paper was based on systematic literature reviews. They used four SCM fields to analyse logistics and marketing. They found that AI improves decision- making efficiency and automation in SCM.

III. Significant of the Study

AI is rapidly transforming all sectors worldwide. In India, the use of AI is on the rise as well. The impact of AI is different in various sectors, but in the informal sector, it has not yet been explored as well. Informal businesses in Coimbatore are one of the significant parts of the economy as it is the capital city of Coimbatore and has many kinds of businesses. The adoption of AI in the formal sector is visible on the informal side, but it is not so well adapted due to less awareness, digital literacy, financial problems, etc. Therefore, it is necessary to understand the opportunities and challenges faced by informal businesses in Mumbai that can help bridge the digital divide and promote inclusive growth by bringing small businesses into the purview of AI. Insights from the results provide a clear picture of implications for the business. The study is also being carried out to enhance the use of AI in small businesses.

IV. Methodogy

The research approach used in this paper is Qualitative research using semi-structured interviews of the selected individuals who desire to use AI for their informal business in Mumbai and the related challenges.

Sampling Method

The sampling method used in this study is non- Purposeful sampling. The participants selected are

small business owners who own their shops. The data are the outcome opinions of 15 interviewees.

Data Collection

The data was collected through semi-structured interviews with open-ended questions related to AI and informal businesses. The mode of data collection was in person, as the markets were nearby. The open-ended questions were on awareness of AI, usage of AI tools in business, benefits of AI, and related challenges. The interviews were taken after obtaining the consent of the interviewees. The research methodology involved a combination of primary and secondary data collection. Primary data was gathered through surveys conducted with 156 retail professionals, including business owners and employees, to understand their perspectives on AI adoption in retail. Secondary data was sourced from academic journals and industry reports to provide broader context and support the analysis. For data analysis, regression analysis was employed to test the relationships between AI adoption and various business outcomes, offering insights into its impact on operational efficiency and profitability. Additionally, correlation analysis was conducted to examine the links between different AI tools and customer satisfaction, identifying patterns and associations that highlight the role of AI in enhancing retail experience.

V. Major Findings

Opportunities of AI for informal businesses in cities

Digital Marketing

The primary barrier to formal business is the use of digital marketing. Many respondents either do not initiate digital marketing or resist changing their business style.

Additionally, some retailers expressed interest in using AI and wished to use social media and other platforms to expand their businesses and earn more profits.

Customer Engagement

According to some scent sellers, using AI may not help engage customers. They feel that they have been selling the scent for many years, and it is still in high demand. There is regular touch with the customers, but using AI may affect this engagement.

Faster Digital Payment

Almost all the respondents agreed that AI is good for faster payment, as all of the m are accepting UPI and card payments today. So, all of them received a positive response regarding digital payments.

Business Expansion

Considering the use of AI and social media platforms, most respondents believe there is a great scope for business expansion. Many desired to use such a platform to enhance their business and increase the sea volume. The Following Figure 2 explains the impact of AI Revolution

ISBN: 978-81-991002-9-9

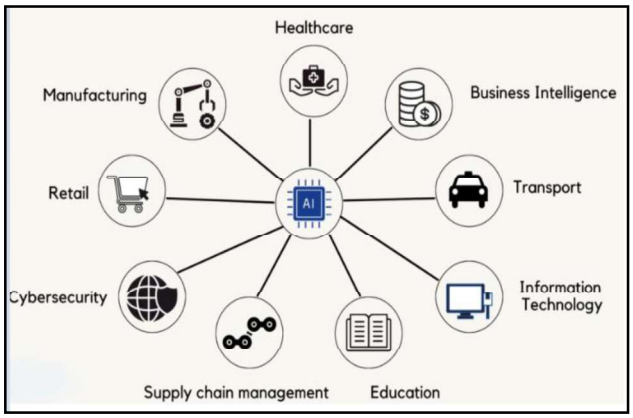

Figure 2: Impact of AI Revolution

VI. Challenges Faced

1. Resistance to Using AI

Some business owners find using AI difficult as many of them are studying until graduation and do not know how exactly to use AI. They are aware of AI's benefits, but they are little aware of its use.

2. Limited Digital Literacy

The use of AI demands digital literacy on the part of its users. Many know about social media and digital payments but do not know the apps or software to help them grow their small businesses.

3. High Cost of AI

Many business owners expressed that using AI and buying apps and software is expensive. They feel that their skill plays an important role in traditional selling, as they learned from their forefathers. However, using AI may result in high costs.

4. Connectivity Issues

The use of AI needs connectivity and Androids. Many of the sellers have good cells and use the internet and Wi- Fi as well. However, due to network issues, they expressed their fear of losing if the transaction is online and unsuccessful.

5. Regulatory Clarity

The use of AI in businesses has some regulatory norms of which many businesses are unaware. They are not well acquainted with the regulations and legal aspects of using AI.

6. Data Privacy and Security Risks

The effectiveness of retail AI systems depends heavily on consumer data collection, raising significant privacy concerns. A 2023 KPMG study found that 78% of consumers worry about how retailers use their personal data, with 43% having abandoned purchases due to privacy concerns. The European Union's AI Act and similar regulations are forcing retailers to implement "privacy by design" approaches (Seranmadevia & Kumar, 2020). Emerging solutions include federated learning, where AI models are trained on decentralized data, and differential privacy techniques that anonymize user information (MIT Technology Review, 2023). However, the tension between personalization and

ISBN: 978-81-991002-9-9

privacy remains unresolved, with researchers calling for standardized ethical frameworks (IEEE, 2023).

7. Workforce Displacement and Skill Gaps

Automation in retail could displace up to 30% of current jobs, particularly in checkout, inventory management, and basic customer service roles(World Economic Forum, 2023). However, Mohanty's (2023) longitudinal study suggests AI is creating more jobs than it eliminates, albeit requiring different skill sets. The challenge lies inreskilling workers for AI-augmented roles like "AI trainers" and "customer experience analysts." Countries like Singapore have implemented successful retail workforce transformation programs, combining government subsidies with industry partnerships (ILO, 2023). In contrast, regions without such initiatives risk exacerbating inequality, as noted in a recent Brookings Institution report (2023).

8. Implementation Barriers for SMEs

While large retailers reap AI's benefits, small businesses face steep adoption barriers. Naik's (2023) survey of Indian retailers found that 68% cite high costs as the primary obstacle, followed by lack of technical expertise (54%) and unclear ROI (49%). Cloud-based AI solutions and industry consortiums are emerging as potential equalizers, with platforms like Shopify's AI tools demonstrating 40% adoption among small merchants (CB Insights, 2023).

9. Key Findings and Implications for Retailers

The study on AI adoption in retail provides crucial insights into how artificial intelligence is shaping business operations, customer experiences, and employment patterns. Based on primary and secondary data analysis, three key findings emerge: AI enhances efficiency but faces adoption barriers, AI-driven personalization improves customer satisfaction, and AI adoption raises concerns about job displacement, requiring workforce reskilling. These findings have significant implications for retailers, influencing strategic decisions related to investment in employee training and data security.

i). AI Improves Efficiency but Faces Adoption Barriers

Artificial intelligence has the potential to significantly enhance efficiency in retail operations by optimizing supply chains, automating inventory management, and streamlining decision-making processes. AI-powered tools such as predictive analytics, machine learning algorithms, and automation software can help retailers reduce costs, minimize waste, and improve forecasting accuracy. However, despite these advantages, AI adoption in retail is not without challenges. One of the primary barriers to AI adoption is cost. Implementing AI-driven solutions requires substantial financial investment in software, hardware, and infrastructure. Small and medium sized enterprises (SMEs) often struggle with these costs, making AI adoption a slower process for businesses with limited budgets. Additionally, the return on investment (ROI) for AI implementation is not always

immediate, which can deter retailers from fully embracing the technology. Another critical barrier is the skills gap. AI-driven retail operations require employees with expertise in data science, machine learning, and analytics. However, many retailers lack skilled professionals who can effectively implement and manage AI systems. Without adequate training and workforce development, businesses may struggle to maximize the benefits of AI adoption. Overcoming these challenges requires a strategic approach. Retailers must weigh the long-term benefits of AI against its initial costs and invest in training programs to upskill their workforce. Collaborations with AI solution providers and technology firms can also help businesses transition to AI-driven operations more smoothly.

ii). Customer Satisfaction Rises with Personalized AI Tools

AI-driven personalization is transforming the retail industry by enhancing customer experiences and satisfaction levels. Retailers are increasingly using AI-powered chatbots, recommendation systems, and voice search assistants to deliver tailored shopping experiences. These technologies analyze customer preferences, past purchases, and browsing behavior to provide relevant product recommendations and personalized promotions. The study highlights that customers respond positively to AI-driven personalization. Personalized recommendations help consumers discover products that align with their preferences, making the shopping experience more convenient and enjoyable. AI-powered chatbots provide instant assistance, answering queries, guiding users through purchases, and offering post-sale support. This level of responsiveness and efficiency leads to higher customer satisfaction and increased loyalty. Additionally, AI enables retailers to implement dynamic pricing strategies that adjust prices based on real-time market conditions, customer demand, and competitor pricing. This not only helps businesses optimize revenue but also ensures that customers receive fair pricing based on current market trends. However, personalization also comes with challenges, particularly concerning data privacy and security. Customers are increasingly aware of how their data is being used, and any misuse or breach of personal information can lead to distrust. Therefore, while AI-driven personalization enhances customer satisfaction, retailers must implement robust data security measures to protect consumer information and maintain trust.

iii). Job Displacement is a Critical Concern, Requiring Reskilling Initiatives

One of the most debated aspects of AI adoption in retail is its impact on employment. While AI can improve operational efficiency and customer experiences, it also has the potential to displace certain jobs. Automation of tasks such as inventory management, checkout processes, and customer service reduces the need for human intervention, leading to concerns about job losses in the retail sector. The study's findings indicate that AI adoption does create job displacement, particularly in roles that involve repetitive tasks. However, it also presents new opportunities for employment in

ISBN: 978-81-991002-9-9

areas such as AI management, data analysis, and system maintenance. The key challenge for retailers is to bridge this transition by providing adequate reskilling programs for employees affected by automation. Retailers must adopt a proactive approach by investing in employee training and development. Reskilling initiatives can help workers acquire the technical expertise needed to work alongside AI systems. Companies can also explore hybrid work models where AI handles routine tasks while employees focus on customer engagement, creative problem-solving and strategic decision-making. Governments and industry bodies also have a role to play in supporting workforce transition. Public private partnerships can help design training programs that equip employees with AI-related skills, ensuring that the workforce remains adaptable in an increasingly automated retail environment.

10. Implications for Retailers

i). Invest in Employee Training to Mitigate Job Losses

Given the potential for AI-driven job displacement, retailers must take a proactive approach in equipping their workforce with new skills. AI adoption should not be viewed as a means of replacing human labour but as an opportunity to enhance workforce capabilities. Training programs should focus on developing digital literacy, data analysis skills, and AI system management. By investing in upskilling and reskilling initiatives, retailers can create a workforce that is adaptable to technological advancements. Employees can be trained to work alongside AI, taking on roles that require critical thinking, decision-making, and customer interaction. This not only prevents job losses but also enhances the overall efficiency of retail operations.

ii). Prioritize Data Security to Build Consumer Trust

With the rise of AI-driven personalization and data analytics, retailers must prioritize consumer data security. AI systems collect vast amounts of customer information, including purchase histories, browsing behaviors, and payment details. If not properly protected, this data can be vulnerable to cyber threats and breaches. Retailers must implement stringent data protection policies and comply with global privacy regulations such as the General Data Protection Regulation (GDPR) and India's Personal Data Protection Act. Secure data encryption, multi-factor authentication, and transparent data usage policies can help build consumer trust. Additionally, businesses should educate customers about how their data is being used and provide them with control over their personal information. Transparency in AI-driven personalization fosters trust and ensures that customers feel comfortable engaging with AI-powered retail services. The Summary table of AI's Influence in Informal Sectors is given below

ISBN: 978-81-991002-9-9

Table 1: AI's Influence in Informal Sectors

Aspect	**AI's Influence in Informal Sectors**
Visibility & Credibility	Builds digital reputations and trust
Job Transformation	Mix of displacement and new roles
Skills & Inclusion	Embedded reskilling and training
Economic Empowerment	Improved productivity, income, access
GDP Upside & Policy	High growth potential; needs balance

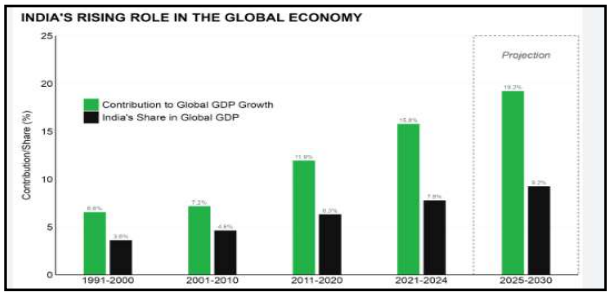

Figure 3: Rising Role in Global Economy

1. Enhancing Visibility, Credibility, and Trust

Digital empowerment of informal workers: AI tools, such as voice-based assistants in local dialects and image-recognition systems, allow workers—from street vendors to domestic helpers—to build digital reputations, create verifiable portfolios, and gain better access to job opportunities

AI-driven platforms in the gig economy*:* Applications using smart matching, screening, and onboarding processes are making it easier for informal workers to find trusted work opportunities faster and more transparently. Figure 3 shows AI role in Rising India in Global Economy

2. Automation, Augmentation & Job Transformation

Displacement risks vs. new opportunities: Routine, low-skilled tasks—common in the informal sector—are increasingly vulnerable to automation. The World Bank warns that up to 69% of such jobs could be at risk over the next two decades However, AI also opens doors to new roles like data annotation and gig-based digital contributions.

ISBN: 978-81-991002-9-9

AI as an augmentation tool for artisans and vendors: Artisans are using AI-powered design tools, analytics, and digital marketplaces to reinvent their creations and reach new customers. Street vendors are leveraging AI-driven inventory and pricing tools to optimize operations.

3. Bridging the Skill Gap & Enabling Inclusivity

Reskilling and upskilling integration: AI-driven hiring platforms now embed micro-learning, onboarding training, and skill-enhancement modules to help informal workers adapt to new job requirements.

Thousands trained at scale: Institutions like AISECT have delivered digital literacy, livelihood training, and financial inclusion across rural India—reaching over 6 million individuals via a network of service centers

XI. Conclusion

The study reveals that AI has many opportunities for informal business in cities related to digital marketing, customer engagement, and faster digital payments, which help to sustain business expansion. At the same time, some business owners feel that adopting AI is difficult due to having less knowledge about it. Several challenges hinder AI adoption, including resistance to change, limited digital literacy, high costs, connectivity problems and lack of regulatory clarity among business owners. Many owners are unfamiliar with AI tools and fear that they may impact their traditional business and customer relationships. The findings highlight the need for affordable AI solutions, training in understanding regulatory norms in easy language, and the need for small owners to be confident to use more AI tools to increase their business to the desired level.

This study highlights the transformative impact of Artificial Intelligence (AI) on the retail sector, demonstrating both its benefits and challenges. AIdriven technologies, including chatbots, demand forecasting, and personalized marketing, have significantly enhanced operational efficiency, customer engagement, and decision-making. The findings from regression and correlation analyses suggest that AI adoption contributes positively to business performance, though challenges such as high implementation costs, data security risks, and workforce displacement persist. The research findings indicate that while AI has the potential to optimize inventory management, its impact remains limited due to weak correlations in the regression analysis. Conversely, AI-driven pricing strategies have shown a statistically significant relationship with revenue enhancement, emphasizing the role of intelligent algorithms in dynamic pricing.

Additionally, concerns regarding employment displacement were confirmed through ANOVA results, reinforcing the need for strategic workforce reskilling programs. Retailers must navigate AI adoption carefully by balancing technological advancements with human capital considerations. Investment in employee training and reskilling initiatives is essential to mitigate job displacement. Moreover, robust data security measures should be prioritized to build consumer trust and ensure regulatory compliance. Future research should explore longitudinal impacts of AI adoption and sector-specific

challenges to develop more comprehensive strategies. By addressing these challenges and capitalizing on AI's potential, retailers can create a competitive edge while fostering sustainable growth. The study underscores the necessity for adaptive strategies that align AI innovations with evolving industry demands, ensuring an inclusive transition towards AI-driven retail operations.

Contribution: Dr.R.Shiddharthy, present the idea and developed the theory and performed the computations. Rajagopalan improves the idea by literature review. Both authors discussed the results and contributed to the final manuscript.

***X*. References**

[1]. Toorajipour, R., Sohrabpour, V., Nazarpour, A., Oghazi, P., & Fischl, M. (2021). Journal of Business Research, 122, 502 517. https://doi.org/10.1016/j.jbusres.2020.09.009Chen, L., Zhang, Y., & Williams, D. (2024). AI & Society, 39, 217-232. https://link.springer.com

[2]. Nnamdi O. Madichie, Ayantunji Gbadamosi & Pantaleo Rwelamila (2021). Entrepreneurship and the Informal Sector: Challenges and Opportunities, Journal of African Business,22 (4), 441 447,

[3]. Arendse, E., & Van Den Berg, C. (2024). Exploring the Barriers to Digital Financial Inclusion amongst Businesses in the Informal Sector. In M. Cunningham & P. Cunningham (Eds.), IST-Africa 2024 Conference Proceedings (pp. 1 11). IST-Africa Institute and IIMC.

[4]. Deen-Swarray, M., Moyo, M. and Stork, C. (2013). 15 No. 5, pp. 52 68. Faruque, M. O., Chowdhury, S. N., Rabbani, M. G., & Khan, N. A. (2024). Technology Adoption and Digital Transformation in Small Businesses: Trends, Challenges, and Opportunities. International Journal for Multidisciplinary Research (IJFMR), 6(5), 1 20.

[5]. Marius Schönberger (2023). Artificial Intelligence for Small and Medium-Sized Enterprises, Journal of Business Management, vol. 23,

[6]. Hammer, A. and Karmakar, S. (2021). "Automation, AI and the Future of Work in India", Employee Relations, Vol. 43 No. 6, pp. 1327-1341

[7]. Chakraborty, H., & Chakrabarti, S. (2024). Informal Sector in India: Competition or Collaboration?Economic and Political Weekly, 59(8).

[8]. Jangili, R. (2024). Issues and Challenges in Measuring the Informal Economy in India.Economic and Political Weekly, 59(44-45).

[9]. Ekasari, S. (2024). Artificial intelligence in the retail sector: Market and business model transformation. Journal of Retail Innovation, 12(3), 45-62.

[10]. IBM. (2022). AI-powered demand forecasting in retail. https://www.ibm.com

[11]. Kırçova, I., Sağlam, M. H., & Köse, Ş. G. (2021). Artificial intelligence in retailing. International Journal of Retail Management, 8(2), 112-128.

[12]. McKinsey & Company. (2023). The state of AI in retail. https://www.mckinsey.com

[13]. Mohanty, S. (2023). The role and impact of artificial intelligence on retail business and its developments. Journal of Business Technology, 15(1), 78-95.

[14]. Naik, D. (2023). Impact of artificial

intelligence on the Indian retail industry. Asian Retail Studies, 7(4), 203- 220.

[15]. Salesforce. (2023). AI in customer service: Global trend report. https://www.salesforce.com