

Available online @ <https://jjem.jnnce.ac.in>  
<https://www.doi.org/10.37314/JJEM.SP0471>  
 Indexed in International Scientific Indexing (ISI)  
 Impact factor: 1.395 for 2021-22  
 Published on: 31 May 2025

# A Study on Opportunities and Challenges of Artificial Intelligence on Rural Entrepreneurial Marketing

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## Abstract

*In the era of digital transformation, the integration of cutting-edge technologies has become imperative for businesses seeking to stay competitive in the dynamic marketplace. Among these technologies, Artificial Intelligence has emerged as a game-changer, influencing various facets of industries and reshaping traditional paradigms. In particular, the impact of AI on marketing strategies and performance has garnered significant attention with businesses recognizing its potential to revolutionize how they engage with customers and drive results.*

*Hence, the paper is intended to examine the opportunities and challenges of artificial intelligence on rural entrepreneurial marketing in Chickmaglurdistrict, Karnataka state. The study is carried out with the sample size of 120 respondents using simple random sampling method using a structured questionnaire. The survey results revealed that more number male rural entrepreneurs are intomicro business activities in manufacturing sector and mainly got the opportunities such as data quality and privacy, faster and smarter decision making, understanding market insights and dynamic pricing. It was observed that rural entrepreneurs are facing the issues of unawareness of artificial intelligence tools, job displacement, data privacy and ethical concerns. It is suggested to create awareness and motivate the rural entrepreneurs to go for the adoption of AI in their marketing practices and its proper implementation helps to overcome the challenges enhancing their contribution to the economy.*

**Key Terms:** Artificial Intelligence, Challenges, Opportunities, Rural Entrepreneurship, Rural Entrepreneurial Marketing

## 1. Introduction

Artificial Intelligence (AI) can bridge the information gap for rural entrepreneurs. Through AI-powered platforms, they can access training materials, business advice and market trends. AI-driven educational tools can offer localized training programs tailored to the specific needs and challenges of rural areas.

Through the knowledge gained and AI-supported tools rural entrepreneurs are better

equipped for product development, leveraging insights into consumer preferences and market trends. AI algorithms can analyse customer feedback, social media data and sales patterns to identify opportunities for innovation which can help rural entrepreneurs develop products that meet market demands and stand out in competitive markets. AI can also assist in prototype development by

simulating and testing various design options.

Rural Entrepreneurs are using artificial intelligence in their daily business activities and technology platforms to market their products and services and to reach out customers easily. Using AI technology have helped them to make easier and faster marketing of their products and services at home and work place encouraging them to reach their customers, dealers, suppliers of different places even they can connect locally as well as globally. Apart from such advantages, rural entrepreneurs are facing certain challenges in using AI platforms like network issues, lack of knowledge of handling platforms, lack of education etc. Therefore, it is essential for the government and big business concerns to provide knowledge and impart skills among rural entrepreneurs in adopting artificial intelligence in their business.

### **Artificial Intelligence- An Overview**

Artificial intelligence is composed of two words artificial and intelligence. Artificial defines “man-made” and intelligence defines “thinking power” or the ability to learn unsolved problems hence artificial intelligence means a manmade thinking power Artificial intelligence is defined as the branch of computer science by which we can create intelligent machines which can behave like a human think like human and able to make decisions on their own. AI is intelligence demonstrated by machines as opposed to the natural intelligence displayed by humans or animals.

High-profile examples of AI include autonomous vehicles (such as drones and self-driving cars), medical diagnosis, creating art (such as poetry), proving mathematical theorems, playing games (such as Chess or Go), search engines (such as

Google search), online assistants (such as Siri), 37 image recognition in photographs, spam filtering, prediction of judicial decisions and targeting online advertisements. AI deals with the area of developing computing systems that are capable of performing tasks that humans are very good at.

### **Rural Entrepreneurship -The Concept**

Rural entrepreneurship is important not only as a means of generating employment opportunities in the rural areas with low capital cost and rising real income of the people, but also due to its contribution to the development of agriculture and urban industries.

According to the Khadi and Village Industries Commission (KVIC) “Village industry or rural industry means any industry located in rural area, population of which does not exceed 10,000 or such other figure which produces any goods or renders any services with or without use of power and in which the fixed capital investment per head of an artisan or a worker does not exceed a thousand rupees”.

### **Rural Entrepreneurial Marketing**

Entrepreneurial marketing is geared towards small businesses and medium-sized businesses and heavily relies on understanding consumer behaviour to develop relationships, aims to establish or increase brand awareness, build relationships and create value.

Rural entrepreneurial marketing is the process of developing, promoting, pricing and distributing products and services in rural areas to satisfy consumers and achieve organizational goals. It aims to improve the standard of living for rural consumers by

making new products and services more accessible and aware of.

## 2. Review of Literature

**Rajeev and et.al., (2024)** studied the potential benefits of AI by scrutinizing the obstacles it confronts. It is found that AI poses certain issues of navigating complex web of concerns, low accessibility and infrastructural problems.

**Vinay and Sathisha (2024)** made a comparative analysis on the use of artificial intelligence in agricultural business and the role of artificial intelligence in agriculture. It is found that artificial intelligence can help to manage the agricultural quality of crop production through planning and understanding of operational services.

**David Dowell and et.al., (2024)** aimed to identify the adoption of AI by rural SMEs and to understand the impact of the same. It is found that networks more than internal factors play a significant role in the adoption of AI. Moreover the intensions of AI adopters are to expand and therefore contribute more to rural economies rather than constrain employment,

**Sajan George and et.al.(2024)** stated that artificial intelligence has become integral to modern marketing, revolutionizing strategies and performance. It is found that AI empowers marketers with tools that drive efficiency, enhance personalization and facilitate data driven decision making, ultimately improving marketing performance and return on investment.

**Jayadatta and Shivappa (2023)** investigated the effectiveness and efficiency of digitalization in the marketing of rural enterprise products with a specific focus on Karnataka state and found that rural enterprises face problems like limited access

to markets, information and resources. They suggested that digitalization has the potential to significantly improve the marketing efficiency of the rural enterprises by leveraging digital platforms to access wider market, gain real time market insights and reduce intermediary dependencies.

**Harsh and Deepak (2023)** aimed to explore the influence of AI enhanced social media strategies on rural entrepreneurial performance. They found that a bibliometric analysis in the research methodology provides comprehensive understanding of existing literature and contribute to the current knowledge base. It is suggested that the recurring theme of model not only provides a technical exploration but also a strategic alignment of AI within social media strategies.

**Dan Xie and Yu He (2022)** opined that rapid development of artificial intelligence technology and big data applications in tourist attractions using smart tourism technology can obtain more accurate and indepth knowledge from tourism big data and mine the value behind the data. It is found that more sufficient and deep integration between rural tourism and artificial intelligence are needed to make tourists get better experience and marketing strategy of rural spots to get better effects and income.

**Priyanka Kumari (2021)** stated that artificial intelligence is helping marketers to predict what their customers want and is a key contributor to more seamless customer experiences. It is found that artificial intelligence is reshaping almost all aspects of doing business, from finance to sales and R&D to operations but the most propound impact of AI is being witnessed in the field of marketing. It is suggested that marketers can leverage AI to build marketing analytics

techniques for targeting the customers which are potential and create customized experience for their customers.

**Amoako and et.al. (2021)** intended to explore the possible effects of artificial intelligence systems to have no entrepreneurs decision making through the mediation of customer preference and industry bench mark. It demonstrates that employees as stake holders can moderate the relationship between AI system and better entrepreneur decision making. It is found that entrepreneurs with a possible technological tool for better decision making highlighting the endless options offered by artificial intelligence systems.

**WaelBasri (2019)** examined the impact of artificial intelligence assisted social media marketing on the performance of startup businesses of small and medium enterprises in Saudi Arabia. It is found that artificial intelligence assisted social media marketing exhibits and increasing trend among startup businesses accounts for overall increase in customers and customer bases and an additional territory effect of increased profitability. It is suggested that enterprises can increase the performance by decreasing various problems of marketing by using artificial intelligence assisted social media marketing.

### 3. Significance of the Study

The contemporary social and business environment is experiencing an intensive wave of digitalization. There is no doubt that artificial intelligence in technology can make the country's development more accessible and efficient. AI-powered tools can support small and medium-sized enterprises in rural communities, helping them streamline operations, improve product quality and reach broader markets which

in turn, contributes to the overall economic growth of the region. Advances in technology have enhanced the use of artificial intelligence and other digital technologies which in turn enhanced scale, speed and productivity of rural industries. Rural businesses can use artificial intelligence to expand their relationship with customers and attract new one. AI also helps the rural enterprises to market their products and services easily through various digital and social media platforms. Using AI in marketing provides various opportunities and benefits to the rural enterprises as they can get access to global market, understand the local market and competition and provide innovative and creative goods and services by understanding customers' needs, tastes and preferences which is a cost effective strategy. Still, many rural entrepreneurs are lagging behind from the usage and adoption of artificial intelligence in their marketing. Also, are facing problems in operating AI based platforms and applications like network issues, digital illiteracy, language barrier, lack of knowledge of usage of mobile phones and digital gadgets, cyber frauds etc. which have made them to avoid its usage. Therefore, present study intends to examine the impact of artificial intelligence marketing on rural entrepreneurship in Chickmagluru district, Karnataka State.

### 4. Objective of the Study

The study is aimed to identify the opportunities and challenges of artificial intelligence on rural enterprises entrepreneurial marketing in the study area

### 5. Study Scope

The study covers the opportunities and challenges of artificial intelligence in marketing among rural entrepreneurs operating in Chickmagluru district.

## 6. Data Sources

Primary data have been collected from the selected categories of rural entrepreneurs through a survey in Chickmagalur district and Secondary data through relevant journal articles, books and online sources.

### Sample Plan

With the population size of 412\*rural entrepreneurs (\*registered with District Industries Centre, Chickmagalur district, Karnataka for 2024-25) in Chickmagalur district, 120 respondents (70 male and 50 female) are contacted for the study using Simple Random Sampling Method.

### Survey

For the collection of data well-structured questionnaire is used with a set of questions related to demographic details of rural entrepreneurs, impact opportunities of artificial intelligence in rural marketing and major challenges faced by them on their business.

### Data Analysis

For the statistical analysis, percentage analysis is used to measure the responses towards each question and is presented in the form of appropriate tables. The study conducted from rural entrepreneurs spread in Chickmagalur district were recorded and analyzed below by using appropriate tables.

**Table -1 Socio- Economic and Business details of Respondents**

Socio- Economic and Business Details		Respondents	Percentage
Gender	Male	70	58.33
	Female	50	41.67
	<b>Total</b>	<b>120</b>	<b>100</b>
Age Group	Age	Respondents	Percentage
	Below 30	29	24.17
	30-45	36	30.00
	45-60	43	35.83
	Above 60	12	10.00
	<b>Total</b>	<b>120</b>	<b>100</b>
Education Background	SSLC	38	31.67
	PUC	32	26.67
	Graduation	27	22.50
	Post-graduation	14	11.67
	Others	09	07.50
	<b>Total</b>	<b>120</b>	<b>100</b>
Type of Enterprise	Micro	62	51.67
	Small	45	37.50
	Medium	13	10.83
	<b>Total</b>	<b>120</b>	<b>100</b>
Nature of Business	Manufacturing	71	59.17
	Service	49	40.83
	<b>Total</b>	<b>120</b>	<b>100</b>

Annual Turnover of the Enterprise (Lakhs)	Up to 2	34	28.33
	2 to 5	53	44.17
	5 to 10	19	15.83
	More than 10	14	11.67
	<b>Total</b>	<b>120</b>	<b>100</b>
Number of Employees Working	Less than 3	39	32.50
	3-5	48	40.00
	5-10	24	20.00
	Above 10	09	7.50
	<b>Total</b>	<b>120</b>	<b>100</b>
Source of Capital	Own funds	32	26.67
	Loan from family and friends	19	13.33
	Loan from commercial banks	23	15.83
	Government schemes	37	30.83
	Loan from private micro financial institutions	12	10.00
	<b>Total</b>	<b>120</b>	<b>100</b>

Source: Field Survey

As per observation, around 60% are male, more than 65% are from the age group of 30-60 years, around 32% have SSLC qualification, 90% are from micro and small enterprises, manufacturing activities are conducted by around 60% respondents, more than 88% respondents have annual

turnover of ₹2-5 lakhs, only 7.5% enterprises have employed above 10 employees, and financial assistance from government schemes is the source of capital followed by own funds for the enterprises (31% and 26% ) respectively.

**Table – 2 Opportunities of Artificial Intelligence in Rural Entrepreneurial Marketing**

Opportunities	Opinion		
	Strongly agree	Agree	Disagree
Faster and smarter decision making	43	58	19
Content generation	51	53	16
Sales forecasting	62	47	11
Market Insight	60	51	9
Ensure data quality and privacy	68	45	7
Optimization of digital ads	49	64	07
Automated image recognition	49	52	19
Turns to autonomous marketing	51	56	13
Real time conversation with consumers	58	57	5
Dynamic pricing	44	56	20

Craft personalized customer experience	45	63	12
Automated email content creation	51	55	14
Statement	Response	No. of respondents	Percentage
Artificial Intelligence has opportunities for rural entrepreneurial marketing	Yes	83	69.17
	No	37	30.83

Source: Field Survey

As observed, real time conversation with consumers has been identified as the biggest opportunity (95.83%) followed by ensuring data quality and privacy (94.16%) while

dynamic pricing is considered as the area of least opportunity with 16.6% disagreeing the statement.

**Table – 3 Challenges of Artificial intelligence in Rural Entrepreneurial Marketing**

Challenges	Opinion		
	Strongly Agree	Agree	Disagree
Data privacy concerns	45	58	17
Lack of Human touch	43	65	12
Lack of awareness about artificial intelligence	59	52	9
Implementation complexity	51	60	9
Ethical considerations	48	58	14
Job displacement	63	47	10
Lack of transparency	49	58	13

Source: Field Survey

As table reveals, lack of awareness about artificial intelligence and implementation complexity are identified the major challenges accounting for 92.5% of the responses.

## 7. Survey Findings

- As India is a transforming into a digitally growing society there is a need to motivate rural educated youths about modern technology like artificial intelligence and big data analytics with proper technological and digital education and skills needed to adopt AI in entrepreneurial marketing activities.
- As majority 57% of sample entrepreneurs have undertaken manufacturing activities, there is a need

to motivate and also train them to undertake service activities also

- Most of the entrepreneurs running micro enterprises leading to generate limited income and the need to improve the status of rural entrepreneurs by providing government support are highlighted in the form of arranging regular awareness programmes to inculcate technological and digital knowledge with available opportunities.
- Upgrading rural entrepreneurs with the modern technologies, tools, social media platforms, websites and technological up gradation especially after Covid 19, they have to essentially depend on artificial intelligence and proper awareness of modern and

suitable social media platforms is highly stressed

- More than 100 rural entrepreneurs are facing the issue of complexity in implementation of AI which should be tackled immediately by the government because without proper implementation and understanding of AI it is highly impossible for them to make digital transactions and marketing.
- Most of the rural entrepreneurs are hesitating to adopt artificial intelligence as it requires much time to making ads, post it and implement it. So, it is needed that government should provide technological assistance to encourage rural entrepreneurs to successfully implement artificial intelligence in their business.
- Privacy concern is the major issue in the adoption of artificial intelligence. There is a need to improve security measures and features in the artificial intelligence tools and applications and make it user friendly and safer one.
- Majority of the rural entrepreneurs are only using common applications like chatbots, facebook, whatsapp, instagram and youtube. But, many more platforms with better features are available for the entrepreneurs to market their products. They need to be educated about it.

## 8. Conclusion

Artificial Intelligence has changed the way companies operate, make decisions and communicate with customers. Even many enterprises are making use of social AI tools not only to make their business activities easier but also to avail various opportunities like innovation, understanding customer tastes and preferences, cost effectiveness, know local markets, digital marketing and making digital transactions. While there are challenges in implementing AI solutions,

businesses that invest in AI technology can gain a competitive advantage and stay ahead of the curve. Rural entrepreneurs also have started recognizing the importance of artificial intelligence for marketing their products and services and have adopted AI tools, platforms and applications to market their products to reach their target customers but, many are still following traditional form of marketing strategies. The adoption of AI in businesses is not an option anymore. Many rural entrepreneurs have concern about privacy issue in using AI tools and there is a need to provide adequate information about privacy features while using Digital Media for marketing. It is very important to provide encouragement and motivation to the rural entrepreneurs to adopt AI in their marketing activities. Having proper knowledge about social media is very essential to realize the opportunities and overcome the challenges to improve the performance of the rural enterprises which in turn leads to overall rural entrepreneurship development.

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