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An Analysis of the Challenges and Opportunities in Adopting AI-driven Marketing Strategies in Rural Tamil Nadu

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ABSTRACT

This study explains how marketing strategies are being executed in many rural areas of Tamil Nadu, using AI.A study on how marketing strategies are implemented in rural areas of Tamil Nadu and the challenges and opportunities involved. Despite its probable to develop purchaser interactions also personalize marketing, AI poses barriers to its use in rural areas. The main purpose of this is to identify the key challenges in implementing AI-based marketing strategies in village settings of Tamil Nadu. It also examines how consumers engage in rural areas of Tamil Nadu along with what are the potential opportunities for improvement. The research study is to determine whether it is possible and how it will impact businesses in rural areas of Tamil Nadu and how they can be improved. These include the lack of adequate digital literacy the need for culturally sensitive AI solutions, product contributions toward address the unique requirements of rural customers. It explores ways in which AI can be leveraged to improve supply chain management, information systems, and more for rural businesses. This study examines the ethical dilemmas raised by the use of AI, including potential method.

Keywords: Artificial Intelligence (AI), Marketing Strategies, Rural Marketing, Digital Marketing

1. INTRODUCTION

The AI gives companies the opportunity to automate customer interactions, assess consumer preferences, and improves marketing efforts; adoption of AI in rural areas is hampered by factors like aversion to technological change, inadequate internet connectivity, and a lack of understanding. AI has innovated marketing strategies across several areas, providing businesses including improved operational efficiency, personalized optimization, and data-driven decision-making. However, implementing AI-driven marketing strategies in rural Tamil Nadu presents both challenges and opportunities. Rural markets in the region are unique, with diverse consumer behaviors, digital literacy levels, and infrastructure limitations. [1] (Artificial Intelligence in Marketing" by Raj Venkatesan and Jim Lecinski) NITI Aayog – AI Strategy for India https://www.niti.gov.in/sites/default/files/2019-01/NationalStrategy-for-AI-Discussion-Paper.pdf

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Notwithstanding these obstacles, the increasing use of smartphones and government-led digital projects creating an enabling environment for AI adoption: Companies can use content and AI-powered predictive analytics to better understand rural consumers and regulate their marketing strategy consequently. The AI empowers small and medium-sized businesses (SMEs) in rural Tamil Nadu by expanding their customer base and enhancing customer engagement. The influence on businesses and consumers is examined in this study as it explores the opportunity and difficulties of with marketing strategies based on the rural areas of Tamil Nadu. Our analysis intends to provide light on how AI may close the digital divide and change rural marketing environments by identifying important obstacles and viable remedies. [2] Ascent Group India. April 2024. https://ascentgroupindia.com/blog/strategic-rural-marketing/marketing-strategies-to-succeed-in-rural-india

1.1. MARKETING STRATEGIES TO SUCCEED IN RURAL MARKETING IN INDIA (2024)

Businesses can use digital channels like Facebook, YouTube, and WhatsApp to interact with rural customers as Smartphone usage raises. Regional language material and voice-based search can improve accessibility. Consumers in rural areas have more faith in word-of-mouth recommendations, community leaders, and local influencers. Increasing brand reach and credibility can be achieved by collaborating with farmers or micro-influencers. [3] https://ascentgroupindia.com/blog/strategic-rural-marketing/marketing-strategies-to-succeed-in-rural-india/ Rural audiences can be reached by brands by integrating local culture and producing marketing content in regional languages. Effective media include local newspapers, radio, and video advertisements in vernacular languages. Rural consumers' restricted purchasing power typically leads them to favor smaller, more affordable product packs. Providing single-use packets and sachets can draw in budget-conscious customers. Customers can get a personal look at products by holding road shows, village fairs, and product demos. Interactive marketing efforts and mobile vans can raise brand recognition. [4] https://www.market-xcel.com/blogs/artificial-intelligence-and-its-challenges-in-daily-life-and-work AI is quickly rising as a transformative energy that will change many aspects of our lives. It has both beneficial and harmful effects on contemporary life and the workplace. This blog will cover AI's challenges as well as its exciting potential for improving our personal and professional life. [5] https://www.market-xcel.com/blogs/artificial-intelligence-and-its-challenges-in-daily-life-and-work.

AI's ethical decision-making is one of its primary problems. As AI systems become more autonomous, privacy, prejudice, and accountability issues become increasingly apparent. It is essential to continue making certain AI function responsibly as well as fairly. Computerization determined by AI has the potential to drastically alteration the labor economy. A few repetitious activities are eliminated, but new roles and skills are also requisite. It is essential to receive proactive steps to up skill and deskill workforce because change may result in job displacement. [6] *Artificial Intelligence: A Guide for Thinking Humans* https://www.penguinrandomhouse.com Data is a fundamental component of AI systems, and the gather, store, and process of huge volume of perceptive and confidential information poses privacy and data security issues. Data protection and responsible use are essential to preserving confidence in AI technologies**.** [7] Agrawal, A., Gans, J., & Goldfarb, A. (2018). Prediction Machines: The Simple Economics of Artificial Intelligence. Harvard Business Review Press. https://www.hbr.org.It is frequently not easy to comprehend how difficult AI systems enter at particular findings due to their require of transparency. For the most part in crucial field be fond of criminal justice this clarity may provide increase to uncertainties regarding biases. [8] https://www.basicbooks.com.

Humans can concentrate on more intricate and imaginative work since AI automates monotonous activities. It helps businesses become more productive by streamlining processes, increasing accuracy,

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and improving efficiency. AI has the ability to completely transform healthcare by helping with drug discovery, disease diagnosis, and treatment planning. Artificial intelligence (AI) algorithms can assist medical professionals in diagnosing patients more accurately and improving patient outcomes by evaluating health-related data. [9] *AI in Healthcare:* Peter D. Szolovits (Editor), MIT Press 2019 https://mitpress.mit.edu AI has the prospective to completely change sector including logistics, manufacturing transportation by increasing productivity, lowering costs, and improving safety. But it also brings with it problems like data privacy, job upheaval, and ethical issues. Policymakers, business executives, and society at large must work together to address these. To fully utilize AI while reducing its negative effects, strong legislation, ethical AI practices, and education are essential. [10] [11] https://www.europarl.europa.eu/topics/en/article/20200918STO87404/artificial-intelligence-threats-and-opportunities

2. REVIEW OF LITERATURE

S. Ramesh Babu(2025)[1] Digital marketing has undergone a alteration due to the incorporation of (AI), changing how companies engage with customers and refine their marketing tactics. Among the advent of AI technology like statistical modeling, future insights, marketers can now provide customized experiences, enhance customer engagement, and realize measurable results. This progress brings with it difficulties, such as decent dilemmas, information company concerns, a demand for qualified experts. This study investigates the prospects and difficulties that AI brings to digital marketing, offering a thorough examination of its capacity to transform the sector. https://jier.org/index.php/journal/article/view/2111 [12]

Mr. Sanjit Sarkar (2025)[2] this research proposal examines how AI affects Indian enterprises, emphasizing its uses, benefits, drawbacks, and potential. Examining ten studies on the use of AI industries like banking, manufacturing, hospitality, it identifies important themes like how AI can increase operational efficiency, the challenges presented by unsatisfactory transportation and a require of experienced workers, and the prospects for expansion in AI-driven sectors. An investigation that compares different industries shows how AI usage varies. https://www.ijcrt.org/papers/IJCRT2501360 [13]

Dr. V. Gopi (2024)[3] Long-term growth in the world depends on properly segmenting and segmenting the fierce e-commerce market to retain customers. Artificial intelligence (AI) is transforming marketing techniques by improving and enhancing the accuracy of buyer segmentation and enabling modified selling campaigns. It also emphasizes how AI can improve buyer retention also grouping. It can predict consumer behavior and deliver tailored experiences, all of which increase customer engagement and loyalty. https://eelet.org.uk/index.php/journal/article/view/2130. [14]

Mr.Arugumugam (2023)[4] In Tamil Nadu, India, rural entrepreneurship has become a key force behind commerce and industrial growth in recent years. The features and prospects of rural entrepreneurship in the state are summed up in this abstract. Obstacles to rural business ownership: Rural entrepreneurship in Tamil Nadu faces numerous important obstacles. These include limited funding, barriers to infrastructure, trouble accessing markets, a lack of skills, and more. Opportunities do exist in this area, though, including social private enterprise, management programs, farming diversification, equipment acceptance, and enhanced rural-urban connections. Although Tamil Nadu's rural entrepreneurship faces several obstacles, there is hope for the future. https://www.researchgate.net/publication/376258701 [15]

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B.Jarinaa(2023)[5]In Tamil Nadu, India, the research look at the implementation of AI technology and how it affects farming methods. AgriTech, the global effort to integrate AI, aims to increase resource efficiency, sustainability, and agricultural productivity. The study examines the advantages and disadvantages of integrating AI knowledge into Tamil Nadu's various farming environments. Even while AI solution for agriculture is being aggressively explored along with applied, there is still a gap in reaching widespread industry adoption. https://matjournals.co.in/index.php/JTDMBF/article/view/4728. [16]

M. Harihararao (2023)[6] The field of AI in market is developing quickly and changing how companies devise their marketing strategies. It entails utilizing AI, ML, and other sophisticated technologies to automate and enhance various market processes. Due to the data explosion and the growing intricacy of customer behavior, companies must utilize these tools to remain competitive. This article investigates the idea of Artificial Intelligence in market, its function in existing market efforts, its compensation and obstacles, optimal implementation strategies, and ethical implications. It will also study the future of AI in market and its possible effects under marketing. https://www.researchgate.net/publication/371700146 · [17]

Ebtisam Labib (2023)[7] AI (Artificial Intelligence) has instigated a marketing revolution, facilitating rapid digital transformation via process improvements, growth acceleration, and alterations to the business environment. While there is growing interest in artificial intelligence review studies, comprehensive reviews are still absent in the marketing field. This study uses SLR method to examine the procedure of AI in marketing as a new research issue. Additionally, the current study used a bibliometric analysis to broaden the scope of the SLR. It is evident that AI is becoming more established in the market industry. https://www.researchgate.net/publication/380270398_Artificial_intelligence_in_marketing_exploring_current_and_future_trends [18]

Zhao Kun (2023)[8] AI is transforming the selling industry in giving businesses previously unthinkable insights into consumer preferences and behavior. Artificial intelligence in marketing analytics has a bright future thanks to improved personalization, technological integration, and a greater emphasis on activities. The knowledge, emphasize principled along with accountable, practices, prioritize customer privacy and data protection, adopt new technologies, and work with AI suppliers and start-ups in order to fully understand the likely of AI. The can assist companies within surpassing rivals, promoting future expansion, and achieving success. https://www.ijfmr.com/research-paper.php?id=4956 [19]

Mohd javaid (2022)[9] Artificial intelligence (AI) has a lot to offer. It helps disseminate method of resources, improve software's capacity to manage data, and develop involved and sophisticated algorithms. Brands and users are experiencing a transformation in their interaction due to AI. How this technology is applied varies greatly based on the kind of website and business involved. It is now possible for marketers to concentrate more on the customer and fulfil their requirements immediately. Utilizing AI allows for a rapid assessment of the appropriate content to direct at customers and the optimal channel to use at any given time, based on data gathered produced its algorithms. https://www.sciencedirect.com/science/article/pii/S2666603022000136 [20]

M. Jabeen (2022)[10] Society is moving closer to connected technology, IoT, as a result of the internet and digitization. Every aspect of life, including industry, education, healthcare, banking, and construction, is becoming more and more computer-based. This paper investigates how AI is

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employed the selling of products. The seeks to conceptually analyze the history, current state, and future of marketing in relation to Artificial Intelligence. Constitute the elements accountable for a product's success. A new dimension in the consumer-brand relationship will arise, involving post-purchase dissonance, virtual product testing, and the elimination of consumer information processing. AI is permanent and will be around for a long time. https://wjarr.com/sites/default/files/WJARR-2022-1419 [21]

Srikrihnan chintalapti (2021)[11] the next wave of disruption in enterprise business has been largely caused by the digital revolution driven by artificial intelligence's (AI) growing capabilities. One of the corporate sectors that are undergoing a major upheaval is marketing. Modern marketing has started experimenting with cutting-edge, contemporary technology like artificial intelligence (AI) incorporating them into standard processes to guarantee faster success. This article explores a recent area of research: the application of AI in market. https://journals.sagepub.com/doi/abs/10.1177/14707853211018428. [22]

Priyanka kumara (2021)[12] One of the most notable instances today is AI in Marketing. AI assists marketers in forecasting customer desires and acting an essential role creating smoother customer experience. AI is often employed in contexts where speed is crucial, and it is indispensable for marketing efforts. AI tools utilize data and customer profiles to optimize communication with customers and deliver customized messages at the ideal moment, all while maximizing efficiency and eliminating the need for marketing team involvement. In the present customer-driven market, the intricacies associated with making decisions are growing daily. This encompasses comprehending customer wants and needs and ensuring products are in alignment with these wants and needs. https://www.igi-global.com/chapter/the-role-of-artificial-intelligence-ai-in-sustainable-marketing/355156 · [23]

Silva s.c (2021)[13]Artificial intelligence in marketing and intelligent systems are mirroring human behavior. AI is also considered intelligent. It not only performs its tasks in the same way as artificial intelligence but also arouses great interest among researchers and practitioners in the marketing field. And this article is given to us by describing the development of AI research cells in selling but also its use is important for their data security and ethics. Influence and multi-correlation analysis are implemented. This explains us in various research studies about the capabilities of marketing workers in terms of dimension analysis. https://ideas.repec.org/a/eee/jbrese/v128y2021icp187-203.html [24]

Dr. N. Thilagavathy (2021)[14] this essay focuses on the fascinating relationship that is being fueled by new trends between digital marketing, AI. The techniques for integrating AI into app development even at the proposal stage. Through electronic services, digital market, valid subfield of selling, successfully increased customer involvement and added value for businesses. Technology's rise has created a original competitive arena for digital market, which has rapidly changed as a result of digitalization. Digital technology is used in global marketing to increase the effectiveness of business operations and customer service delivery. file:///C:/Users/GP%20LAPTOP/Downloads/AI%20(1) [25]

Dr. Dhiraj Shembekar, (2020)[15] At the beginning of the 2020s, everything can be found online. In summary, everything is bought and sold online. This shows the intelligent enterprise with intelligent customer. AI provides reliability, is cost-effective, addresses complex issues, and makes choices the specialist system; AI is utilized today across various domains, be it commerce or engineering. Perhaps social media is the most significant and fast-moving form of marketing today. AI assists marketers in analyzing brand presence and discussions in their vicinity to gauge customer satisfaction. https://www.jetir.org/papers/JETIREF06009.pdf · [26]

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3. OBJECTIVES OF THE STUDY

1. To identify the key challenges in implementing AI-driven marketing strategies during rural Tamil Nadu.
2. To explore the potential opportunities for leveraging AI to enhance consumer engagement in village area Tamil Nadu.
3. To study on feasibility of adopting AI and how it will impact village areas of Tamil Nadu.

4. STATEMENT OF THE PROBLEM

There are many opportunities and challenges in using AI-based strategies in village sector of Tamil Nadu. The potential to increase customer engagement and facilitate personalized marketing, but there are also many barriers to its effective implementation. First, digital video is one of the most significant barriers. Limited internet connectivity and inconsistent access to digital devices get in the way the effective execution of AI-based solution. Second, the adoption and use of AI-based solutions in rural areas be hampered by varying levels of digital literacy. Many rural businesses and consumers may not have the awareness and skill required to use these technologies. Applications of AI that take cultural differences into account are crucial. These may not be adequate solutions that work effectively in the unique socio-cultural context of Tamil Nadu. Data security work is already underway, which raises potential methodological biases that could undermine its effectiveness. And the availability of skilled personnel to manage and maintain these systems remains a significant issue. There is a lack of awareness along with rural businesses and customers about the reimbursement, which further hinders its adoption. Therefore, this study aims to address these concerns and how AI can support inclusive development in rural areas of Tamil Nadu**.**

5. SCOPE OF THE STUDY

The study focuses on how marketing AI is being used in rural Tamil Nadu. We will look at various applications, including using chatbots to engage customers or personalizing ads. We will also look at issues such as poor internet or people who are not familiar with using digital tools. These studies examine various business activities involving small businesses, services, and farms. The challenges of implementing strategies in rural marketing in Tamil Nadu are explored through the experiences of customers and business owners. We will look at how the connection and local culture influence the application. The aim is to inspire companies and the government to improve marketing efficiency in rural Tamil Nadu. We will focus on both future potential and existing applications.

6. HYPOTHESES OF THE STUDY

H01: There is hardly any Significant Inadequate digital infrastructure along with internet connectivity are major challenges in implementing AI-driven marketing strategies in rural Tamil Nadu.
H02: There is no significant AI having the capacity to enhance customer interaction and personalization of marketing content in rural Tamil Nadu.
H03: There is no significant the adoption of AI in rural businesses leads to increased marketing efficiency and better decision-making..
H04: There is hardly any significant the degree of acceptance and knowledge ofAI among rural consumers and business owners significantly affects the effectiveness of advertising strategies powered by AI.

7. RESEARCH METHODOLOGY

Surveys and interviews with 150 farmers, small business owners, and retailers in rural Tamil Nadu provided the study's primary data, while government reports, industry publications, and research papers provided the secondary data. The study analyzes the opportunities and problems of AI-driven marketing strategies utilizing a mixed-method approach and explanatory examine design.

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7.1. Data Analysis

The data was collected through Google Forms and that was entered in a spreadsheet. The data was coded into SPSS software.

7.2. Sampling tools

The Analyses using the sampling tool in Descriptive Analysis, Multilayer Perception, Multiple Regression Analysis.

8. RESEARCH QUESTIONS

- Which infrastructure constraints have the biggest effects on AI-driven marketing in Tamil Nadu's rural areas?
- How does the use of AI marketing tools in rural areas depend on the degree of digital literacy?
- Which cultural factors are most important for the effective application of AI marketing in Tamil Nadu's rural areas?

9. LIMITATIONS OF THE STUDY

- Rural communities have limited access to dependable internet connectivity.
- Consumers and companies in rural areas lack awareness and digital literacy.
- Expensive upfront and ongoing expenses for implementing AI.
- Opposition to implementing AI-powered solutions because of conventional company procedures.
- Restricted availability of high-quality for AI-powered decision-making in rural areas.

10. ANALYSIS AND INTERPRETATION

DESCRIPTIVE STATISTICS (AI IN DEMOGRAPHIC INFORMATION)

Table No: 1
Gender

Particulars	No of Respondents	Percentage
Male	94	61.8%
Female	56	36.8%
Total	150	

Source: Primary data (calculation made by the author) SPSS 2024

Table No: 2
Age Group (in Years)

Particulars	No of Respondents	Percentage
18-20	68	44.7%
21-23	35	23.0%
24-26	23	15.1%
Above27	24	15.8%
Total	150	

Source: Primary data(calculation made by the author) SPSS 2024

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Table No: 3
Education

Particulars	No of Respondents	Percentage
High school Or Below	65	42.8%
Under Graduate	47	30.9%
Post Graduate	20	13.2%
Ph.D/ Diploma	18	11.8%
Total	150	

Source :Primary data(calculation made by the author) SPSS 2024

Table No: 4
Occupation

Particulars	No of Respondents	Percentage
Farmer	64	42.1%
Small Business Owner	50	32.9%
Student	19	12.5%
Other	17	11.2%
Total	150	

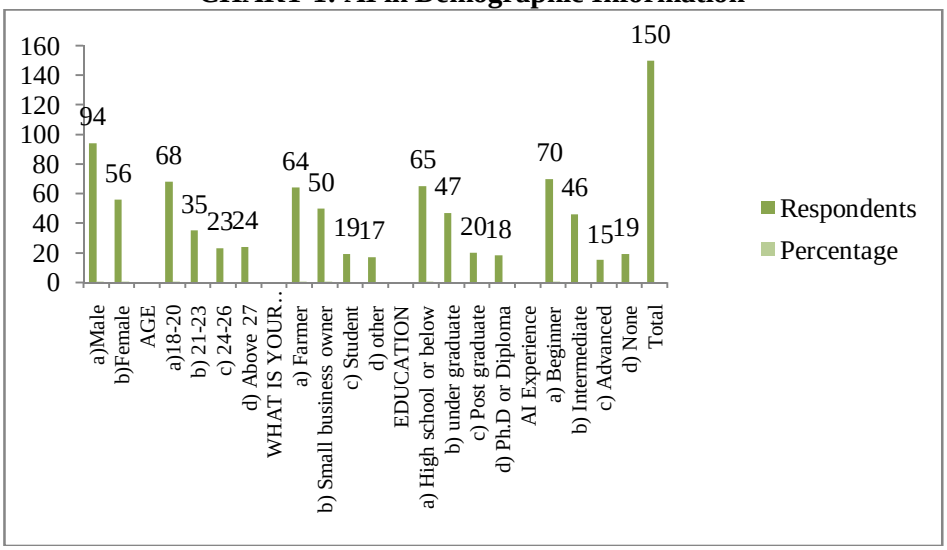
Source :Primary data(calculation made by the author) SPSS 2024

Table No: 5
AI Experience

Particulars	No of Respondents	Percentage
Beginner	70	46.1%
Intermediate	46	30.3%
Advanced	15	09.9%
None	19	12.5%
Total	150	

Source :Primary data(calculation made by the author) SPSS 2024

CHART 1: AI in Demographic Information



Source: Primary data (calculation made by the author) SPSS 2024

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- Gender: The sample is predominantly male (61.8%), indicating a potential bias in the results (Table 1)
- Age: The majority (44.7%) of respondents are between 18-20 years old, suggesting a focus on young adults. The sample's age distribution suggests a focus on young adults, who may be more receptive to AI-powered tools (Table 2).
- Academic Level: farmer (42.1%) and small business owner (32.9%) make up the largest groups, indicating a focus on undergraduate students. There is a need for AI education and training programs, particularly for young adults and undergraduate students (Table 3)
- Education: Most respondents (42.8%) have a high school education or below, while 30.9% hold a bachelor's degree (Table 4).
- AI Experience: Beginners (46.1%) dominate the sample, followed by intermediate users (30.3%). AI literacy initiatives should focus on beginners and intermediate users, addressing the knowledge gap in AI-powered tools (Table 5, Chart 1).

Table: 6 MULTILAYER PERCEPTRON
CASE PROCESSING SUMMARY

Particulars	No of Respondents	Percentage
Sample Training	100	66.7%
Testing	50	33.3%
Total	**150**	

Source: Primary data (calculation made by the author) SPSS 2024

Table: 7
NETWORK INFORMATION

INPUT LAYER	**FACTORS** 1 2 3 4	Social media platform AI power tools AI Driven Marketing in Rural Area Digital tools for Marketing
	Covariates 1 2	 AI Small Business in Rural Marketing. AI Driven Marketing Support
	Number of units [a]	19
	Rescaling Method for Covariates	Standardized
Hidden	Number of Hidden Layers	1
Layer(s)	Number of Units in Hidden Layer 1[a]	3
	Activation Function	Hyperbolic tangent
Output Layer	Dependent Variables 1	Awareness Usage in AI Marketing
	Number of Units	1
	Rescaling Method for Scale Dependents	Standardized
	Activation Function	Identity
	Error Function	Sum of Squares

a. Excluding the bias unit
b. Source :Primary data(calculation made by the author) SPSS 2024

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FIGURE .1 MULTI LAYER PERCEPTION (NETWORK)

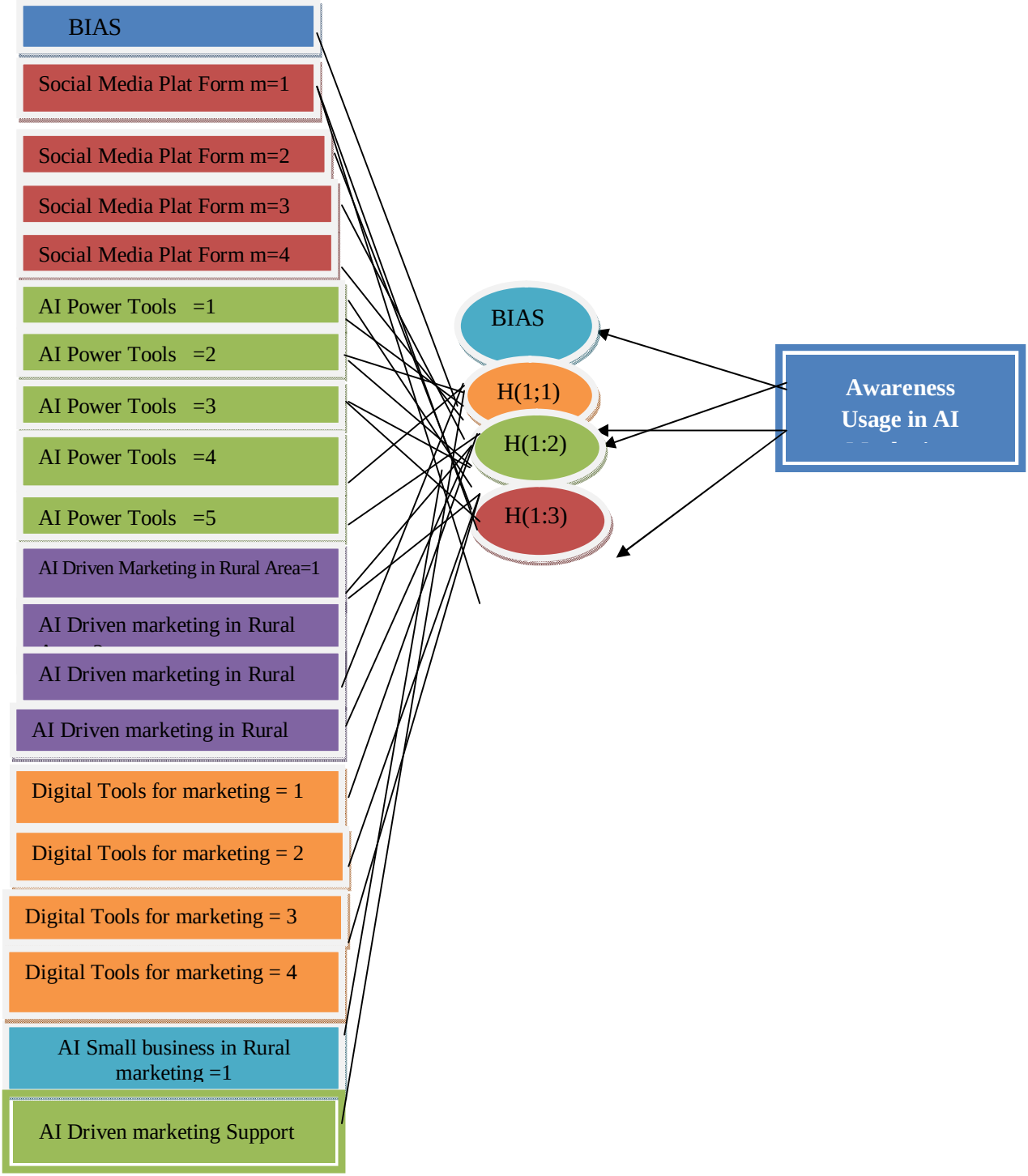

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Table :8
MODEL SUMMARY

Training	Sum of Squares Error	34.559
	Relative Error	.698
	Stopping Rule Used	1 consecutive step(s) with no decrease in error [a]
	Training Time	00:00:00.055
Testing	Sum of Squares Error	20.154
	Relative Error	.625

Source: Primary data(calculation made by the author) SPSS 2024
Dependent Variable: Awareness usage in AI Marketing
a. Error computations are based on the testing sample.

The Case processing review provides an overview of the dataset used in study or model. The overall quantity of cases (observations) is 150**.** Training Sample 100 cases (66.7%) are used to train the model. Testing Sample: 50 cases (33.3%) are used to evaluate model performance. There are no excluded cases (0%), meaning all 150 cases were valid for analysis (Table 6**)**.

The neural network model is planned to predict Awareness Usage in AI Marketing using multiple input factors and covariates (Table 7, Figure 1**)**. The input layer consists of four categorical factors (such as social media platforms and AI-driven marketing in rural areas) and two continuous covariates related to AI in rural business and marketing support. The inputs are standardized for consistency. The model uses the hyperbolic tangent activation function, which permits non-linearity in learning patterns, and consists of a single hidden level of three neurons. The output layer consists of one unit, instead of the dependent variable, with an identity activation function (linear output) and an **error** function based on the sum of squares. This setup indicates a relatively simple neural network structure optimized for predicting AI marketing awareness using standardized input data.

The model summary indicates the neural network's overall performance in predicting awareness usage in AI marketing (Table 8). The Sum of Squares Error (SSE) for the preparation set is 34.559, although for testing 20.154, suggesting the model has a reasonable fit but still some error. The relative error is 0.698 for training and 0.625 for testing, indicating moderate accuracy in predictions. The stopping rule was triggered after one successive action without a reduction in mistake, meaning the representation stopped training when no further improvement was observed. The training process was very fast, completing in 0.055 seconds, which suggests an efficient computation.

Table: 9
MULTIPLE REGRESSIONS

Descriptive Statistics	Mean	Std. Deviation	N
Awareness usage in AI marketing	2.05	1.028	150
Social Media Plat form	1.85	.659	150
AI Power Tools	2.00	1.170	150
AI Driven marketing in Rural Area	2.01	.990	150

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Digital Tools for marketing	1.87	.745	150
AI Small business in Rural marketing	1.85	.961	150
AI Driven marketing Support	1.82	.949	150

Source: Primary data(calculation made by the author) SPSS 2024

Table:10
Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.710	.381		7.108	.000
Social media Plat form	1.259	.136	1.166	3.901	.059
AI Power tools	.087	.078	.099	4.118	.266
AI Driven marketing in RuralArea	.095	.092	2.015	2.166	.869
Digital Tools for marketing	.014	.117	.010	4.116	.907
AI small business in Rural marketing	1.067	.092	1.062	5.727	.468
AI Driven marketing Support	2.122	.092	1.113	6.335	.184

Source: Primary data (calculation made by the author) SPSS 2024

Table: 11
ANOVA[b]

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	8.718	6	1.453	1.396	.220[a]
Residual	148.855	143	1.041		
Total	157.573	149			

Source: Primary data (calculation made by the author) SPSS 2024

Table:12
MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.235[a]	.055	.016	1.020

Source: Primary data (calculation made by the author) SPSS 2024

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INTERPRETATION

According to the descriptive statistics, respondents' awareness and use of AI tools in promotion range from moderate to low(Table 9 -12). On what looks to be a Likert-type scale, the mean values for all factors fall connecting 1.82 and 2.05, delegate relatively little familiarity or engagement. In particular, the mean for "Awareness usage in AI marketing" is the highest (2.05, SD = 1.028), suggesting that respondents are marginally more knowledgeable about this topic than others. However, the mean for "AI Driven marketing Support" is the lowest (1.82, SD = 0.949), indicating little usage or support. The low means (1.85) for "Social Media Platform" and "AI Small Business in Rural Marketing" further support the pattern of less AI integration in small business and rural settings. The standard deviations indicate some variation in the responses, especially for "AI Power Tools" (SD = 1.170), which may indicate varying exposure or experience levels among the participants. All things considered, the data emphasizes the necessity of greater accessibility, awareness, and training to promote the exercise of AI-driven marketing tackle, particularly in the small business also rural sectors.

The coefficients table sheds light on how different predictor variables relate to the dependent variable, awareness usage in AI marketing. We may deduce the relative importance and statistical significance of each independent variable from the unstandardized and standardized coefficients as well as the significance (Sig.) values. The baseline level of awareness utilization in AI marketing is moderately high when all independent variables are held at zero, according to the constant (intercept), which is 2.710 and statistically significant (p =.000).

Social Media Platform is one of the predictors with a negative beta coefficient (B = -0.259) and a p-value (.059) that is just beyond the standard cutoff of 0.05. This implies that a modest decline in the use of AI awareness may be linked to greater use or reliance on social media platforms; however, this effect is only marginally significant, suggesting that interpretation should be done with caution.

AI Power Tools has a minor positive correlation (B = 0.087) but is not significant (p =.266), indicating that there is no compelling confirmation that these tools have an contact on awareness levels. A remaining factors do not exhibit statistically significant connections with the dependent variable. With p-values well above 0.05, the following studies show no discernible impact on awareness usage in AI marketing: "AI Driven Marketing in Rural Area" (B = -0.015, p =.869), "Digital Tools for Marketing" (B = 0.014, p =.907), "AI Small Business in Rural Marketing" (B = -0.067, p =.468), and "AI Driven Marketing Support" (B = -0.122, p =.184). Regression study indicates that none of the variables taken into account have a significant or robust effect on awareness of AI marketing. The most important usage of social media platforms and might merit more research. The usually modest connections may suggest that the integration of these tools is still in its infancy across the observed population, or that other unmeasured factors influence AI marketing awareness more significantly.

The ANOVA evaluate the regression model's overall significance in forecasting AI marketing awareness usage based on the six independent variables. At the 0.05 level, the model of regression is not statistically significant overall, according to the F-value of 1.396 and the importance level (p-value) .220. This indicates that a considerable portion of the variation in awareness usage of AI marketing cannot be explained by the predictors taken together: AI Driven Marketing Support, Social Media Platform, Digital Tools for Marketing, AI Small Business in Rural Marketing, AI Driven Marketing in Rural Area, and AI Power Tools. Further demonstrating that sample only accounts for a small proportion of the entire variability (157.573) the dependent variable contains the regression SS. 148.855, in contrast to 8.718, the residual sum of squares. Therefore, the model as a whole lacks

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predictive ability, even though individual predictors may exhibit minor trends, as seen in the coefficients table.

The independent and dependent variables appear to have a relatively positive connection, as indicated by the multiple correlation coefficients (R) of 0.235 in Table 12's model description. As indicated by the R Square value of 0.055, the model might only explain 5.5% of the variation in the significant parameter. The Adjusted R Square decreases to 0.016 when the model's number of predictors is taken into account, indicating that the model overall illustrative authority is quite low. The significant amount of unexplained variability is reflected in the Standard Error of the approximate, which stands at 1.020 and indicates a comparatively large average difference between the projected and actual values.

This finding implies that the diversity in AI marketing awareness may be better explained by additional significant factors not covered by this model. It also suggests that, especially in rural or underdeveloped marketing sectors, initiatives to raise awareness may need to address more general problems like infrastructure, education, or policy assistance.

10.1 SUGGESTIONS

This study will help us to suggest several recommendations that can be made to improve the use of AI-based market in rural areas of Tamil Nadu. This should be prioritized for infrastructure development. Investments in dependable internet connectivity, easily accessible digital plans can be used toward expand the use. Secondly, targeted digital literacy activities are needed to connection the knowledge gap. This program should focus on effective AI techniques and applications that are relevant to rural businesses and consumers. Culturally sensitive AI systems should be developed, taking into account local languages and customs. This is something that major technology suppliers, community organizations, and local businesses can work together to do. It is crucial to create data privacy and security regulations that are suitable for rural areas to make confidence and promote the utilize of AI. The expansion of affordable AI technology will be easier used for small businesses to adopt if it is supported by government grants or public-private partnerships. This can be done by raising awareness about the benefits of AI marketing through workshops and demonstrations. Local AI support centers can be established to provide technical assistance and training to businesses to further expand its adoption. Finally, it is considered essential to continuously monitor and evaluate AI marketing activities to fine-tune strategies in rural Tamil Nadu and ensure their effectiveness.

11. CONCLUSION

In conclusion, this study illustrates to us that there are various difficulties in implementing marketing strategies through AI in village areas of Tamil Nadu. The potential for greater customer engagement and business growth is undeniable, but there are still many challenges that need to be addressed. The primary issue is the digital divide, characterized by low levels of digital literacy and limited internet connectivity. In addition, the need for culturally sensitive AI solutions highlights how important it is to adapt technology to the unique socio-economic conditions of rural communities. Despite the many challenges in this study, the opportunities are significant. Artificial Intelligence (AI) has the possible to connection the gap between urban & rural communities by facilitating customized marketing and improving market access for rural businesses. However, collaboration between all stakeholders, including local communities, IT companies, and government agencies, is crucial for successful implementation. Prioritizing infrastructure development, promoting digital literacy, and protecting data privacy are all key steps. This study illustrates that a cautious and contextual approach is needed to adopt AI in village sector of Tamil Nadu to leverage technology to enhance equitable and sustainable development.

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