WAINGANGA COLLEGE OF ENGINEERING AND MANAGEMENT, NAGPUR.
(AN AUTONOMOUSINSTITUTE)

TOPIC :- ROLE OF ARTIFICIALINTE LLIGENCEINDIGITAL MARKETING: CHALLENGES AND FUTURE PROSPECTS FOR SMALL AND MEDIUM INDIAN BUSINESSES

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Abstract :- Artificial Intelligence (AI) is no longer a technology reserved for large corporations. Free and low-cost generative tools such as ChatGPT and Canva AI now allow even a single-counter shop to write promotional messages, design posters and reply to customers within minutes. This study, *"Role of Artificial Intelligence in Digital Marketing: Challenges and Future Prospects for Small and Medium Indian Businesses,"* examines how far this opportunity has actually reached small retailers in a semi-urban market and what stands in the way of wider use. Primary data were collected through a structured field survey of 30 shop owners in Mangrulpir town (Washim district, Maharashtra) covering general stores, clothing shops, medical stores, an agri-input dealer and service businesses. The findings show a strong digital base: every respondent uses WhatsApp, Instagram or Facebook for business and accepts UPI payments, and 90% have heard of AI content tools. However, only 63.3% have actually used an AI tool, mainly ChatGPT for promotional text and Canva AI for creatives. Awareness of AI was significantly associated with its use (Fisher's exact $p = 0.041$), and medical stores showed significantly lower adoption than other trades ($p = 0.012$), largely due to concern about incorrect information. Lack of knowledge (53.3%) emerged as the single biggest barrier, followed by lack of time, language and cost; firm age and size showed no significant relationship with adoption. The paper proposes a four-stage "Aware–Assisted–Routine– Data-led" roadmap and recommends local-language, hands-on training as the most practical way to convert AI awareness into everyday marketing practice.

Keywords :- Artificial Intelligence, Digital Marketing, Small and Medium Enterprises (SMEs), Generative AI, Technology Adoption, Semi-urban Retail, Mangrulpir.

1. INTRODUCTION :-

1.1 Background of the Study :-

Marketing in India has changed more in the last ten years than in the fifty years before it. Cheap mobile data, affordable smartphones and the rapid spread of the Unified Payments Interface (UPI) have brought even small-town shopkeepers into the digital economy. Today a kirana owner in a taluka town can display a product catalogue on WhatsApp Business, post offers on Instagram and collect payment through a QR code pasted on the counter. Small and medium businesses form the backbone of this economy: the Ministry of MSME reports more than six crore enterprises in the country, the overwhelming majority of them micro units run by an owner and a few employees. The next layer of this transformation is Artificial Intelligence. In marketing, AI refers to software that can learn from data and perform tasks that earlier required human judgement or creativity, such as writing an advertisement, designing a poster, answering a customer's query, recommending products or deciding which audience should see a paid post. Until recently these capabilities were available only to large brands with data-science teams. The arrival of generative AI tools in 2022–23 changed this equation. A shopkeeper can now type one line in simple language and receive a

ready festival offer message, or upload a product photo and get a designed social-media post in seconds, often free of cost.

This creates a real opportunity for small and medium Indian businesses, which usually cannot afford advertising agencies or full-time designers. At the same time, adoption is not automatic. Small business owners work long hours, many are more comfortable in Marathi or Hindi than in English, and some are cautious about trusting a machine with messages that go to their regular customers. The gap between what AI can do and what small shops actually do with it is therefore an important question for managers, trainers and policy makers. The present study examines this gap using first-hand data collected from shop owners in Mangrulpir, a semi-urban town in Washim district of Vidarbha, Maharashtra.

1.2 Rationale of the Study :-

Most published research on AI in marketing focuses on large companies, e-commerce platforms or metropolitan start-ups. Very little evidence exists from small towns, where the customer is known personally, where word of mouth still matters and where the owner is also the marketer, the accountant and the salesperson. Understanding how such owners perceive and use AI is essential if government schemes, technology companies and business schools want to design training that actually works on the ground. A study grounded in a real local market can therefore add practical value that desk-based studies cannot.

1.3 Statement of the Problem :-

Although small businesses in semi-urban India are now digitally connected, it is not clear whether this connectivity has translated into the use of AI for marketing. There is also limited knowledge of which types of businesses are adopting AI faster, which tools they prefer, and what specific barriers (knowledge, time, cost, language or trust) hold back the rest. Without such evidence, efforts to promote AI among small businesses risk being generic and ineffective.

2. REVIEW OF LITERATURE :-

2.1 Theoretical Foundations of Technology Adoption

Research on why businesses adopt new technology commonly draws on three frameworks. The **Technology Acceptance Model (TAM)** proposed by Davis (1989) states that a user adopts a technology when he or she finds it useful and easy to use. The **Unified Theory of Acceptance and Use of Technology (UTAUT)** by Venkatesh et al. (2003) added social influence and facilitating conditions such as training and support. At the firm level, the **Technology–Organisation–Environment (TOE)** framework (Tornatzky & Fleischer, 1990) explains adoption through the nature of the technology, the resources of the firm and pressure from the market. Rogers' (2003) **Diffusion of Innovations** theory further reminds us that adopters move through stages of knowledge, persuasion, decision, implementation and confirmation. Together these theories suggest that awareness and perceived ease of use are likely to be the first gates that a small shop owner must pass through.

2.2 AI in Marketing

Davenport et al. (2020) argue that AI will change marketing strategy as well as customer behaviour, starting with narrow, task-level applications before moving to more integrated uses. Huang and Rust (2021) classify marketing AI into mechanical, thinking and feeling intelligence, and suggest that routine tasks such as content creation and customer replies are the first to be automated. Kaplan and Haenlein (2019) define AI as a system's ability to interpret external data, learn from it and use that learning to achieve goals through flexible adaptation. Mariani et al.

(2022), in a systematic review, show that the literature has concentrated on large firms and consumers, leaving small enterprises comparatively under-researched.

2.3 Generative AI and Small Businesses

Dwivedi et al. (2023) describe generative conversational AI such as ChatGPT as a technology that lowers the cost of producing text and ideas, which is particularly relevant for resource-poor firms. They also caution about incorrect or "hallucinated" outputs. Basri (2020) found that AI-assisted social media marketing improved the performance of small and medium enterprises in Saudi Arabia, while Chatterjee et al. (2021), using an integrated TAM–TOE model in India, showed that perceived usefulness and organisational readiness drive AI adoption. Ghobakhloo and Ching (2019) observe that SMEs usually adopt digital tools in steps, beginning with low-cost, easy-to-use applications. Kotler et al. (2021) describe this era as "Marketing 5.0", where human-like technologies are used to create and deliver value.

Table 1: Summary of Key Literature

Author (Year)	Focus	KeyI nsight Relevant to This Study
Davis (1989)	TAM	Usefulness and ease of use drive technology acceptance.
Venkatesh et al. (2003)	UTAUT	Facilitating conditions (training, support) shape actual use.
Rogers (2003) Davenport et al. (2020)	Diffusion of Innovations	Adoption begins with knowledge; awareness precedes use.
Huang & Rust (2021)	AI and marketing	AI first enters marketing through narrow task-level uses.
Basri (2020)	Strategic AI framework	Routine content and service tasks automate first.
Chatterjee et al. (2021)	AI in SME social media	AI-assisted social media improves SME performance.
Dwivedi et al. (2023)	AI adoption in India	TAM–TOE factors explain firms' AI adoption.
	Generative AI	Lowers content cost; accuracy remains a concern.

Source:Compiledbytheresearcher fromreviewedliterature.

2.4 Research Gap

The reviewed studies establish the value of AI in marketing and the factors behind technology adoption, but they are based largely on large firms, urban samples or online surveys. There is little field evidence on how small shop owners in semi-urban Maharashtra use freely available AI tools, and whether their barriers are the same as those found in larger firms. This study attempts to fill that gap with direct, shop-level data.

Based on the above literature, the conceptual framework of the study is presented in Figure 1. AI capabilities act as inputs that enable digital marketing adoption, which is expected to produce business outcomes; the strength of this relationship is moderated by barriers faced by the owner.

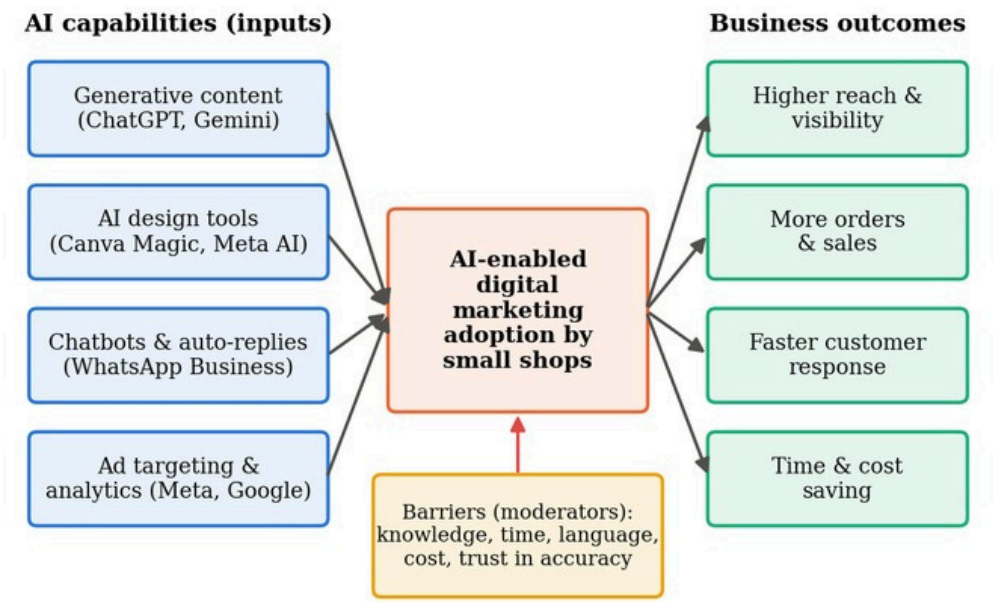

Figure 1: Conceptual framework of the study (developed by the researcher)

3. OBJECTIVES OF THE STUDY :-

1. **To study the extent of digital marketing and AI tool usage** among small and medium businesses in Mangrulpir.
2. **To identify the AI tools used and the purposes** for which they are applied in marketing.
3. **To examine the relationship between AI awareness, business type, business age and size** and actual AI adoption.
4. **To identify the major challenges** that restrict the adoption of AI-based digital marketing.
5. **To assess the future prospects** and expected benefits of AI and digital tools, and to suggest a practical adoption roadmap.

4. HYPOTHESES OF THE STUDY :-

$H_0$1: There is no significant association between awareness of AI tools and actual use of AI in business.

$H_1$1: There is a significant association between awareness of AI tools and actual use of AI in business.

$H_0$2: There is no significant association between type of business and adoption of AI.

$H_0$3: There is no significant difference in years of operation between AI adopters and non-adopters. **$H_0$4:** There is no significant difference in number of employees between AI adopters and non- adopters.

5. SCOPE AND LIMITATIONS OF THE STUDY :-

The study covers small and medium retail and service businesses operating in Mangrulpir town, Washim district, Maharashtra, and focuses on their use of social media, digital payments and AI tools for marketing purposes. The following limitations apply:

1. **Sample size:** The survey covers 30 businesses, so findings indicate trends rather than a statistically representative picture of all Indian SMEs.

2. **Geographical restriction:** Data are drawn from a single town; results may differ in metro cities or remote villages.
3. **Self-reported data:** Responses depend on owners' own statements, which may be affected by recall or social-desirability bias.
4. **Cross-sectional nature:** The survey captures one point in time; changes in AI usage over time could not be tracked.

6. RESEARCH METHODOLOGY :-

6.1 Research Design

The study follows a **descriptive and analytical research design**. The descriptive part measures the level of digital and AI adoption among shop owners, while the analytical part tests the association between adoption and selected business characteristics.

Table 2: Research Methodology at a Glance

Element	Details
Research design	Descriptive and analytical
Study area	Mangrulpir town, Washim district, Maharashtra
Population	Owners of small and medium retail/service businesses in the town
Sampling method	Purposive / convenience sampling across business categories
Sample size	30 shop owners (one respondent per business)
Primary data	Structured survey schedule filled through personal visits
Secondary data	Journals, books, government reports (MSME, NITI Aayog), websites
Tools of analysis	Percentage analysis, mean, cross-tabulation, Fisher's exact test, Mann–Whitney U test
Software used	MS Excel and Python (pandas, SciPy, Matplotlib)

Source: Researcher'sowndesign.

6.2 Research Instrument

A structured survey schedule of 19 items was used. It captured business profile (type, years in operation, number of employees), digital usage (social media, purpose of use, UPI, online design tools), AI awareness and usage (tools used and purpose, reasons for non-use), barriers, willingness to learn, future intention and expected benefits. Questions were asked in Marathi or Hindi where needed and recorded in English. Figure 2 shows some of the businesses visited during data collection.

(a) Wholesale medical & surgical (b) Kirana / general store (c) Jewellery & general store (d) Pharma stock interior

Figure 2: Sample of businesses surveyed in Mangrulpir during field work (photographs by the researcher)

6.3 Statistical Tools

Because the sample is small and several expected cell frequencies are below five, **Fisher's exact test** was preferred over the chi-square test for 2×2 associations, and the non-parametric **Mann–Whitney U test** was used to compare business age and size between adopters and non-adopters. The significance level was set at 5% (α = 0.05).

7. DATA ANALYSIS AND INTERPRETATION :-

7.1 Profile of Respondent Businesses

Table 3: Profile of Respondent Businesses (n = 30)

Sr. No	Variable / Category	Responses	Percentage
A	Type of business		
1	Other services (beauty parlour, jewellers, furniture, electronics, gift shop, etc.)	10	33.3
2	General / kirana store	8	26.7
3	Clothing	7	23.3
4	Medical store	4	13.3
5	Agri input	1	3.3
B	Years in operation (mean 11.1 years)		
1	Up to 5 years	11	36.
2	6 – 10 years	7	7
3	More than 10 years	12	23.
C	Number of employees (mean 5.0)		3
1	1 – 2 employees	11	4306..
2	3 – 5 employees	11	07
3	6 and above	8	36.
			7
			26.
			7

Source:Primarysurveyof30shopowners,Mangrulpir(202 6).

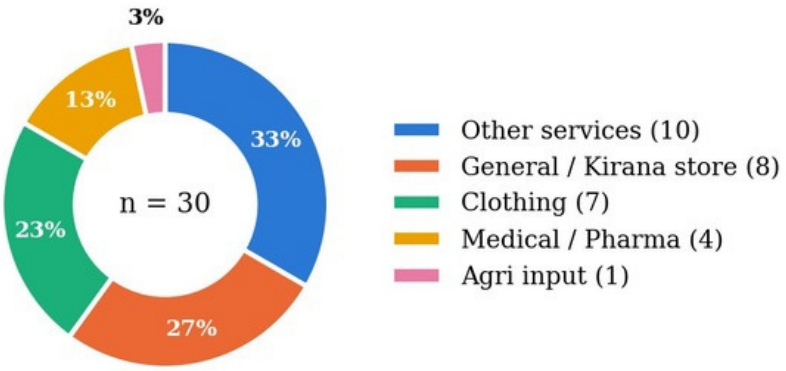

Figure 3: Distribution of respondents by type of business

Interpretation: The sample covers a wide cross-section of the town's market. One-third of businesses are service or speciality shops, followed by general stores and clothing shops. A healthy mix of new (up to 5 years) and long-established (over 10 years) businesses is present, and nearly three-fourths employ five or fewer people, confirming that the sample represents typical small and medium local businesses.

7.2 Digital Readiness of Businesses

Table4 :Use of Digital Channels and Tools

Sr. No	Indicator	Yes	Percentage
1	Uses WhatsApp / Instagram / Facebook for business	30	100.0
2	Accepts UPI / digital payment	30	100.0
3	Has used an online tool/app to create posts, photos or messages	28	93.3
4	Has heard of AI tools that auto-generate posts/photos/replies	27	90.0
5	Has actually used an AItool in business	19	63.3

Source:Primarysurveyof30shopowners,Mangrulpir (2026).

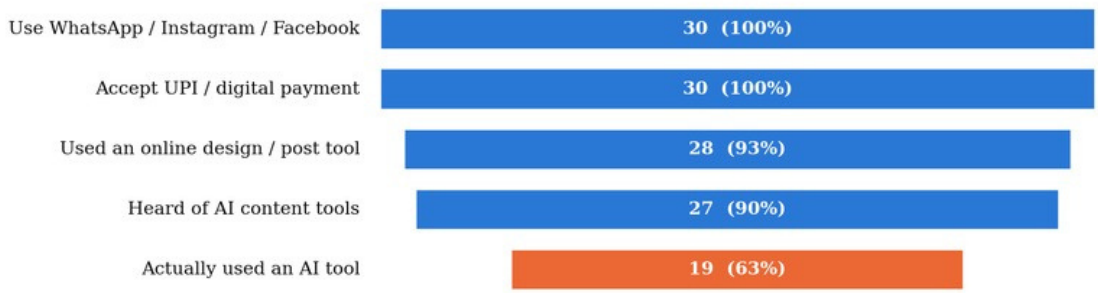

Figure 4: Digital-to-AI adoption funnel of surveyed businesses (n = 30)

Interpretation: The digital foundation in Mangrulpir is remarkably strong: all 30 businesses use social media and accept UPI, and 90% are aware of AI tools. The funnel narrows sharply only at the last step, where awareness has to become actual use. About 27 percentage points separate those who have heard of AI from those who have used it, indicating that the challenge is no longer connectivity but conversion of awareness into practice.

7.3 Purpose of Using Social Media for Business

Table 5: Purpose of Social Media Use (multiple responses)

Sr. No	Purpose	Responses		Percentage
1	Customer chat / enquiries	22		73.3
2	Receiving orders	21		70.0
3	Promotion / offers	21		70.0
4	Other uses	5		16.7

Source:Primarysurvey(2026).Percentagesexceed100because respondentsga vemultiple answers.

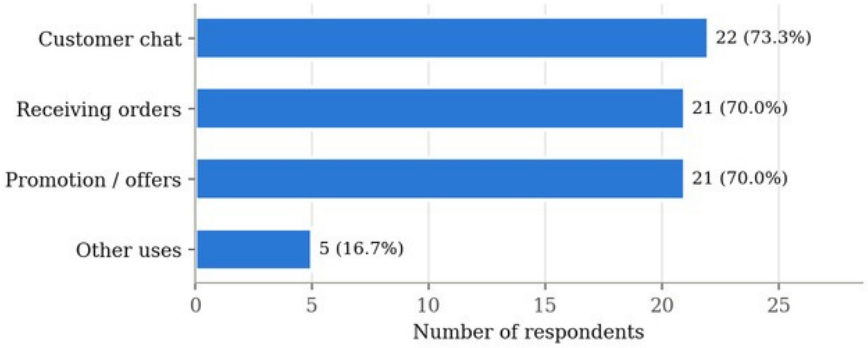

Figure 5: Purpose of social media use by businesses

Interpretation: Social media is used almost equally for conversation, order-taking and promotion. This means it already functions as a sales counter, not just an advertising board. Such everyday message-heavy tasks are exactly where AI writing tools and automated replies can save time.

7.4 AI Tools Used and Purpose

Table 6: AI Tools Used by Businesses

Sr. No	AI Toola ndMainPurpose	Responses	Percentage
1	ChatGPT only – captions, promotional text, product messages and offers	10	33.3
2	Canva AI only – posters, product images, social-media creatives	8	26.7
3	Both ChatGPT and Canva AI	1	3.3
4	Not used any AI tool	11	36.7
	Total	**30**	**100**

Source: Primarysurveyof30shopowners,Mangrulpir (2 026).

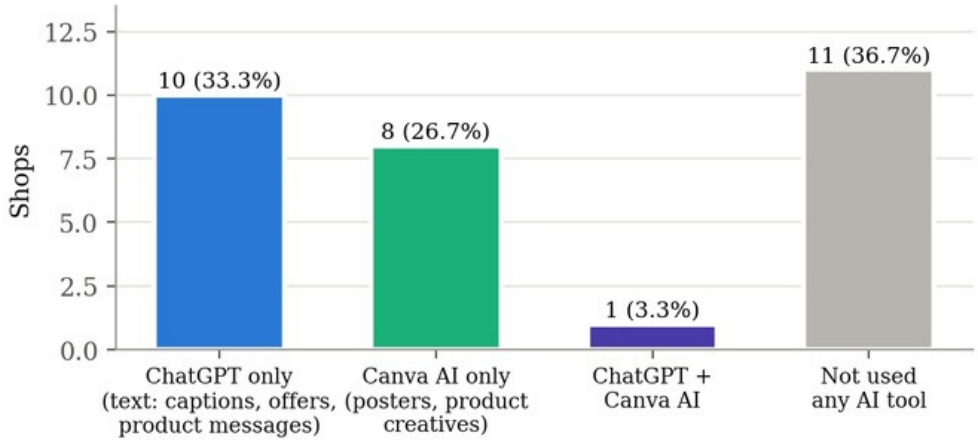

Figure 6: AI tools adopted by surveyed businesses

Interpretation: Adoption is concentrated in just two free, general-purpose tools. ChatGPT is used for text (offers, captions, product descriptions) and Canva AI for visuals (posters and creatives). No respondent reported using advanced AI such as ad-targeting, analytics or chatbots, showing that small businesses are at the entry level of AI use: content creation rather than data-driven decision-making.

7.5 AI Adoption by Type of Business

Table 7: Cross-tabulation of Business Type and AI Use

Sr. No	Type of Business	Used AI		Not Used
1	Clothing (7)	7 (100%)		0
2	General store (8)	7 (87.5%)		1
3	Agri input (1)	1 (100%)		0
4	Other services (10)	4 (40%)		6
5	Medical store (4)	0 (0%)		4
	Total	**19**		**11**

Source: Primary survey of 30 shop owners, Mangrulpir(2 026).

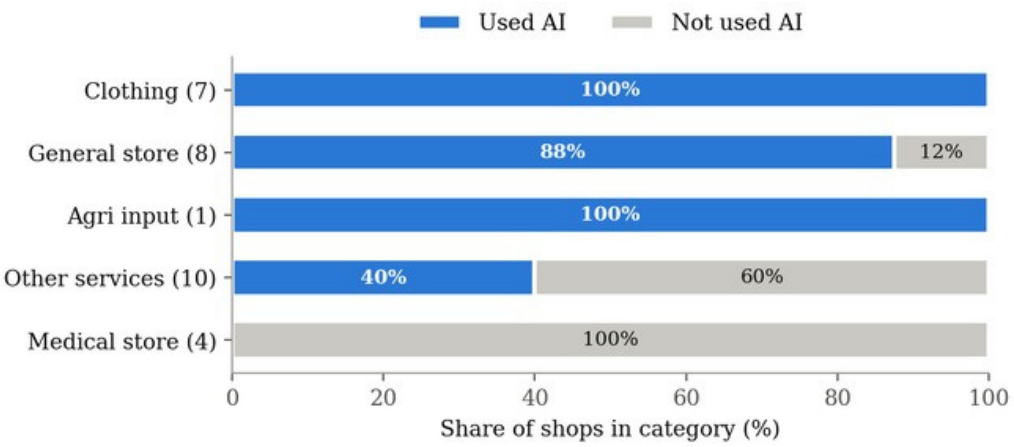

Figure 7: Share of AI adopters within each business category

Interpretation: Clothing and general stores, whose products change with fashion and festivals and need frequent promotion, show near-complete adoption. In contrast, none of the four medical stores used AI, although all of them had heard of it. Three of them cited "concern about incorrect information", which is understandable in a trade where a wrong product detail can harm a customer. Business type therefore shapes adoption more strongly than business age or size.

7.6 Awareness, Use and Future Intention – Venn Analysis

Figure 8 overlaps three groups: owners who have heard of AI, those who have used it, and those who want to increase their digital use in future. Every AI user had first heard of AI (no one sits in "used but not heard"), confirming that awareness is a precondition for use.

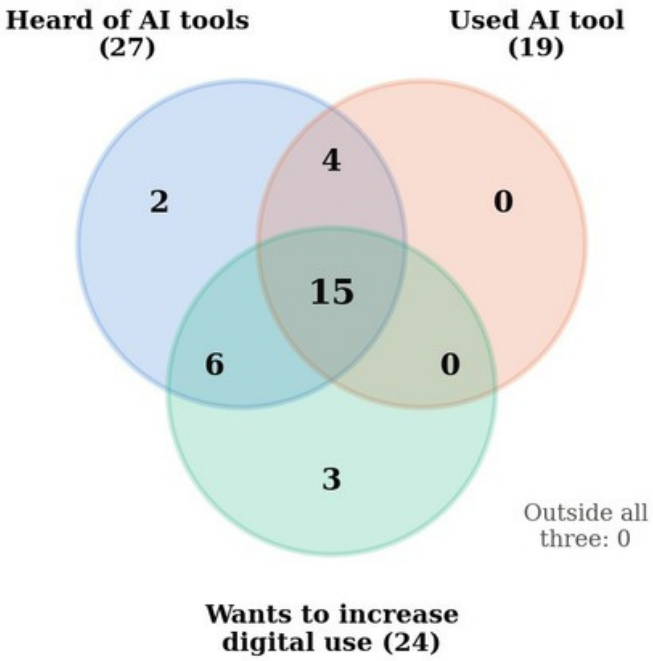

Figure 8: Venn diagram of AI awareness, AI use and future intention (n = 30)

Interpretation: Half of all respondents (15) sit at the centre: they know AI, use it and want to use more. Six owners know about AI and want to grow digitally but have not yet tried it; this is the most promising group for training because the intention already exists. Four users do not wish to increase digital use; all of them said they have no time to learn more, showing that even adopters can stall when time is scarce.

7.7 Challenges in Adopting AI-based Digital Marketing

Table8 :BiggestChallengeinAdoptingDigitalMarketing / Technology

Sr. No	Challenge	Responses	Percentage
1	Lack of knowledge	16	53.3
2	Lack of time	6	20.0
3	Language (tools mainly in English)	4	13.3
4	Cost	3	10.0
5	Other	1	3.3
	Total	**30**	**100**

Source:P rimarysurvey of 30 shop owners, Mangrulpir(20 26).

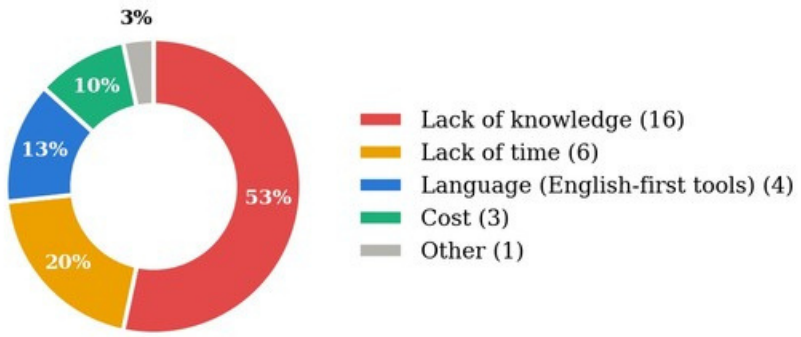

Figure 9: Biggest challenge reported by shop owners

Interpretation: Lack of knowledge is by far the main barrier, reported by more than half of the owners, including many who already use AI. Cost is the least important barrier, because the tools used are largely free. The problem is therefore not money but skills and confidence. Language is a notable barrier; several respondents specifically asked for Marathi support or local-language training.

Among the 11 non-adopters, the specific reasons for not using AI are shown in Figure 10. Fear of incorrect information was the most common (4 respondents, all from medical or electronics trades), followed by limited understanding of how AI works.

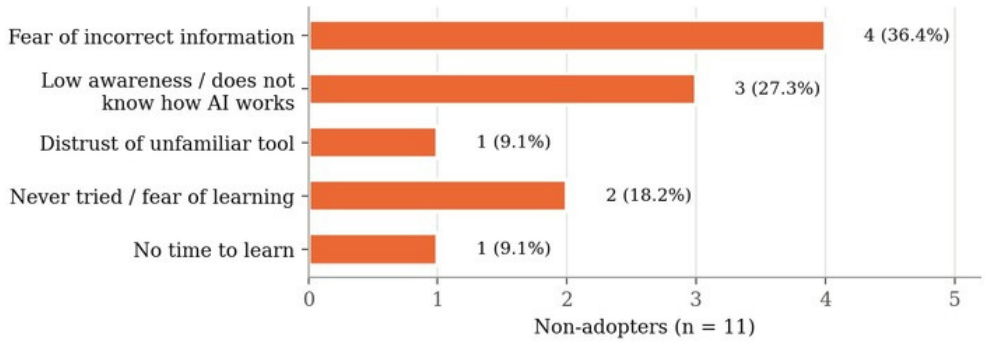

Figure 10: Reasons for not using AI (non-adopters, n = 11)

7.8 Future Prospects and Expected Benefits

Eighty per cent of owners (24) feel they have the time and opportunity to learn new tools, and the same 80% want to increase their digital and technology use in future. Figure 11 groups the benefits they expect.

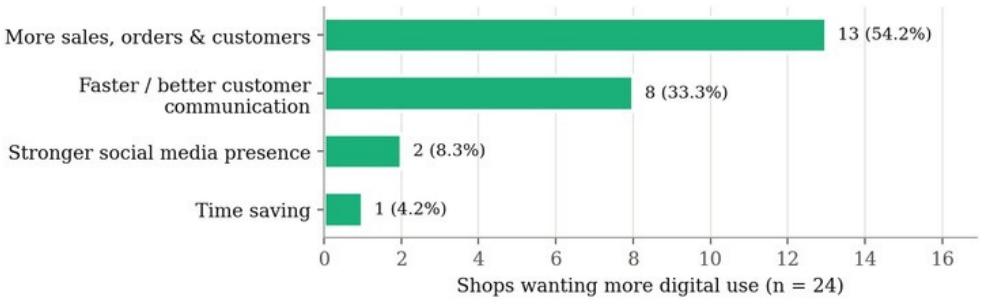

Figure 11: Expected benefits from increased digital and AI use (n = 24)

Interpretation: Four out of five owners wantt o increasetheir use of digital tools, and they expect concrete business returns: more sales, orders and customers (54.2%) and faster customer communication (33.3%). Notably, the six owners who said they lack time to learn are exactly the six who do not plan to increase digital use. Time availability is therefore the dividing line between future adopters and those who will stay at the current level.

8. HYPOTHESIS TESTING :-

Table9:Results of Hypothesis Testing (α = 0.05)

Hypothesis	Test Applied	p-value	Result
$H_0$1: Awareness of AI and AI use are not associated	Fisher's exact test	0.041	Rejected
$H_0$2: Business type (medical vs. others) and AI use are not associated	Fisher's exact test	0.012	Rejected
$H_0$3: Years of operation do not differ between adopters and non-adopters	Mann–Whitney U	0.779	Not rejected
$H_0$4: Number of employees does not differ between adopters and non-adopters	Mann–Whitney U	0.473	Not rejected

Source: Researcher'scomputationfromprimarydata.

The results show that **awareness of AI** and **type of business** are significantly associated with AI adoption, whereas **age and size** of the business are not. In other words, a new, small shop is just as likely to use AI as an old, larger one; what matters is whether the owner knows about AI and whether the nature of the trade allows comfortable use. The mean age of adopters (10.4 years) was close to that of non-adopters (12.2 years). These findings support the TAM and Diffusion of Innovations view that knowledge and perceived suitability, rather than firm resources, drive the adoption of low-cost technologies.

9. FINDINGS OF THE STUDY :-

1. **Digital base is universal:** 100% of businesses use social media for business and accept UPI, and 93.3% have used an online design or messaging tool.
2. **Awareness is high but use lags:** 90% have heard of AI tools, but only 63.3% have used one, a gap of about 27 percentage points.
3. **Entry-level AI use:** Adoption is limited to ChatGPT (text) and Canva AI (visuals); advanced applications such as chatbots, ad targeting and analytics are absent.
4. **Trade matters:** Clothing (100%) and general stores (87.5%) lead adoption, while medical stores (0%) avoid AI due to accuracy concerns.
5. **Knowledge is the key barrier:** Lack of knowledge (53.3%) outweighs time (20%), language (13.3%) and cost (10%).

6. **Age and size do not matter:** There is no significant difference in years of operation or staff strength between adopters and non-adopters.
7. **Strong future intent:** 80% want to increase digital use, expecting higher sales and faster customer communication; the remaining 20% are held back by lack of time.

10. DISCUSSION :-

10.1 From Awareness to Action

The study shows that the problem in semi-urban India is no longer access to technology. Smartphones, WhatsApp and UPI are present in every surveyed shop. The real gap lies between knowing about AI and knowing how to use it confidently in one's own business. This supports Rogers' view that the "knowledge" stage must be followed by persuasion and hands-on trial before adoption becomes routine.

10.2 Trust and Accuracy

The complete absence of AI use among medical stores is an important finding. It echoes the concern raised by Dwivedi et al. (2023) about incorrect outputs of generative AI. Where information has health or financial consequences, owners rightly demand accuracy. For such trades, AI should be positioned as a tool for design and general promotion, with product details always verified by the owner.

10.3 Challenges and Future Prospects for Small Indian Businesses

The challenges identified, namely knowledge, time, language and trust, are human rather than financial. This is good news, because such barriers can be reduced through training and better tool design. As AI tools increasingly support Indian languages and voice input, and as WhatsApp and Meta integrate AI features directly into apps already used by shopkeepers, the barriers of language and time are likely to fall. The future prospect is a shift from using AI only to write posts to using it for customer service, catalogue management and targeted local advertising. Figure 12 proposes a four-stage roadmap for this journey.

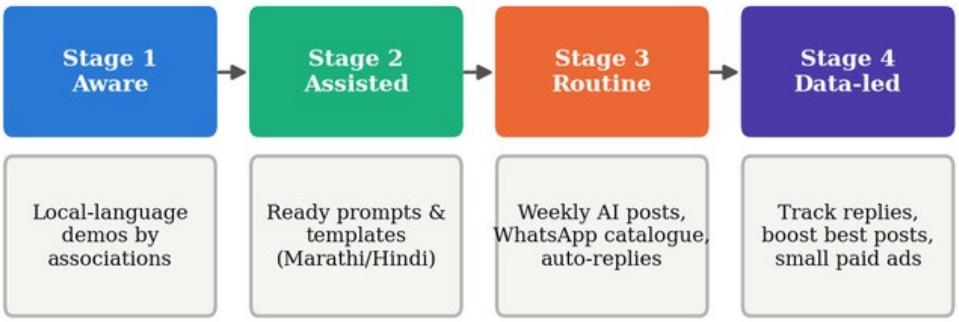

Figure1 2: Proposedfour-stageAIadoptionroadmapforsmallbusinesses (developed by the researcher)

11. SUGGESTIONS AND RECOMMENDATIONS :-

1. Local-Language, Hands-on Training

- Traders' associations, business schools and District Industries Centres should conduct short, practical AI workshops in Marathi and Hindi, held outside business hours.
- Training should use real examples: festival offers, new-stock posters and customer reply templates.

2. Ready-to-Use Prompt and Template Kits

- Simple printed or WhatsApp-shared prompt cards (for example, "Write a Diwali offer for my clothing shop in Marathi") can reduce the time and skill needed to start.

3. Accuracy Safeguards for Sensitive Trades

- Medical, agri-input and electronics dealers should use AI for design and general promotion, but verify every product, dosage or technical detail before sharing.

4. Move Towards Data-Led Marketing

- Owners already using AI should adopt WhatsApp Business catalogues, quick replies and low-budget targeted ads to reach nearby villages and farmers.

5. Role of Government and Institutions

- MSME and Digital India programmes can add an AI-marketing module to existing digital literacy initiatives; MBA students can act as "digital mentors" to local shops as part of field projects.

12. CONCLUSION :-

This study set out to understand the role of Artificial Intelligence in the digital marketing of small and medium Indian businesses, using real survey evidence from 30 shop owners in Mangrulpir. It finds that small-town businesses are fully digital in their basic operations and broadly aware of AI, and that nearly two-thirds have already begun using free generative tools such as ChatGPT and Canva AI to create promotional text and visuals. AI adoption is significantly linked to awareness and to the type of trade, but not to the age or size of the business, which means that even the smallest shop can benefit if the owner has the right knowledge.

The main challenges are lack of knowledge, time and local-language support, along with concern about the accuracy of AI output in sensitive trades. Cost is not a major obstacle. With 80% of owners willing to increase their digital use and expecting higher sales and better customer communication, the future prospects are positive. Focused, local-language and practical training can convert this willingness into everyday practice and help small Indian businesses compete more effectively in an AI-driven marketplace.

Scope for Future Research

Future studies can use a larger sample across several districts, compare urban and rural businesses, and measure the actual impact of AI use on sales over time through a longitudinal design.

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