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# An Empirical Study on Digital Readiness and Online Visibility Challenges of Micro Businesses in Maharashtra

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**Abstract**

**Purpose:**

This research aims to benchmark the digital marketing readiness of micro-enterprises in Maharashtra and the problems that these firms grapple to gain online visibility. India and the digital push Micro enterprises are frequently excluded from the digital economy, which is attributed to structural, technological, and knowledge-related factors. The study responds to a call for research that focuses on the status of readiness of small businesses in using digital marketing tools, and on the barriers that hinder small business visibility in the online marketplace.

**Study design/methodology/approach:**

Applying an empirical, mixed methods approach, the research undertook a survey of 150 micro businesses in five sample districts: Mumbai Suburban, Pune, Nashik, Nagpur and Solapur using a structured questionnaire and in-depth (semi-structured) interview. Descriptive statistics and thematic analysis were used to evaluate digital marketing infrastructure, platform utilized, awareness, and barriers.

**Findings:**

The findings show that only 38% of micro businesses engage with digital marketing tools, and knowledge of the importance of key visibility tools such as Google Business Profile is limited (24%), with just 10% actively managing their listings. Key barriers include low levels of digital marketing literacy (42%); a lack of trust in online platforms receiving money (33%); perceptions of the internet being too expensive (27%); and infrastructural deficiencies such as inadequate internet service in rural areas (29 %). It was interesting to observe companies founded by younger entrepreneurs or people who had previously attended digital marketing training showed higher levels of readiness and adoption.

**Originality/value:**

This paper provides a first-hand empirical evidence and fresh insights into the readiness of digital marketing of micro enterpriser, which is an unedited idiom and a vital area on Indian Economic terrain. It is through pinpointing these enablers and barriers that this paper contributes to targeted interventions by policy-makers, digital providers and support agencies seeking to increase the online competitiveness and visibility of micro businesses. The findings provide robust evidence for future research and policy oriented towards digital inclusion and sustainable development.

**Keywords:** Digital Readiness, Micro Businesses, Maharashtra, Online Visibility, Digital Inclusion, Google Business Profile, Digital Marketing

## 1. Introduction

The digital ecosystem is changing swiftly and micro businesses in Maharashtra are grappling with adoption of digital marketing as a practice. These businesses, despite being a major part of the economy, suffer from lack of resources, digital illiteracy and lack of resources, which affect their presence online. As emphasized in the work of Pingali et al. (2023), micro-firms in emerging economies, such as India, suffer from low digital readiness because of these barriers. These

challenges need to be understood and tackled urgently for digital inclusion, as it can facilitate making micro businesses more competitive and enhance their growth (Saha et al., 2023).
Maharashtra, being the hub of micro enterprises, is a potential region to study the readiness to digital marketing. While Google Business Profile and social media provide vast opportunity for increased exposure, the utilization rates are low. Prior research has demonstrated that micro- rural and semi-urban level MSMEs like these those in Marathwada operate in challenging environments like poor internet connectivity and low digitized tools (Sinha and Fukey, 2021). Also, many entrepreneurs do not trust or know digital tools and so are skeptical to invest in digital marketing (Rath, 2024).
The present study has the following objectives: To access the digital preparedness and the online visibility challenges faced by the micro enterprises in Maharashtra. It will analyze the infrastructure, knowledge, and use of digital tools, such as Google Business Profile and social media, and provide actionable insights to help remove such barriers. Drawing upon Singh & Sharma (2021) and few others, this study aims at contributing to digital inclusion efforts and assist micro firms in enhancing their online visibility, thus fostering their economic development in the digitally transformed economy.

## 2. Literature Review

### Digital Readiness

Micro-enterprises also vary on digital readying, how well-equipped they are to use digital tools effectively. Nair et al. (2019), organisational culture, employee competence and infrastructure have a major impact on SMEs' readiness for the digital era. According to Saha et al. (2023), mirco and small scale enterprises has challenge in learning and technology adoption for digital transformation particularly in rural areas of Maharashtra like Mar..athwada. Pingali et al. (2023) digital readiness as a multidimensional construct comprising external (market requirements) and internal (organizational capacity) components. Acharya and Shinde (2022) highlight that Mumbai's SMEs suffer from a lack of training and technology support to use digital to the maximum. Singh and Sharma (2021) find similar obstacles and emphasize that lack of investment in skill development has left many micro-businesses unready to digitalize. Rath (2024) also observes that digital readiness is seen as important but hindered by lack of ICT infrastructure.

### Online Visibility

For tiny businesses The presence over the web is a great asset to grow the market and to reach more customers. small & medium enterprises in India has been rapidly exploiting digital platforms in their business model, the majority of businesses find difficulties with the effective online presence lacking digital marketing expertise, (Sinha and Fukey, 2021). Rath (2024) supports this claim and insists that inspite of their comprehension that entrepreneurs feel the necessity for internet marketing, they are also deficient challenge by-the knowledge and skills for effective digital campaign management. Khalid (2023) emphasizes that visibility in the digital world is a major issue for small businesses, where a good deal have never taken efforts to maximize their online presence through several available digital marketing tools. Nagaraji et al., 2023) find that small enterprises in rural areas, in particular, are less visible online because these do not knows very well the online tools. Patil et al. (2022), so does the varying use of digital marketing channels by Indian Arbizr SMEs in Pune, which results in a lack of online presence. These findings are reinforced by Koushik and Sendhil (2018) who argue that inefficient digital campaigns lead to reduced visibility of many small firms in both urban and rural settings.

### Perception of Digital Tools' Cost-Effectiveness

Micro-businesses often consider digital tools as too costly, even if the benefits are evident. Agrawal and Vaghasiya (2023) report that MSMEs in Pune are reluctant to invest in digital tools that could potentially enhance their efficiency and productivity due to high cost. Small business, and startups in particular, are those who are among the ones who consider the use of digital marketing tools to be beyond their financial clasp, which in turn has constrained their digital engagement (Sharma & Sharma, 2023). Kano et al. (2022) note that the early cost of digital marketing platform discourages micro-enterprises in developing countries from adopting online presence. According to Rath (2024) most small enterprise owners prefer the perception of cost to any potential long term benefit, and as a result are lagging behind in digital adoption. Khalid (2023) goes on to note that small businesses discouraged to use digital public relation campaigns, such as social media advertisement, due to red tape (perceived digital campaign costs) stifling reach. Patil et al. (2022) support these points and point that firms located in the smaller cities consider the digital marketing costs as a burden which they can avoid.

### Perceived Barriers to Digital Adoption

Barriers such as a digital novice and low connectivity are significant constraints toward digital adoption. The significance of digital literacy in the effective utilization of digital marketing tools for micro-businesses is discussed by Singh and Sharma (2021). Bakshi (2020) further highlights that limited internet coverage in rural areas contributes to the digital divide, which blocks micro-enterprises from finding customers on internet. Sinha and Fukey (2021) highlight digital illiteracy as a major barrier as many of the entrepreneurs unable to adopt online marketing as a means of promotion, as they have limited access to technical skills. (2018) also found that limited digital knowledge and application skills are hindering factor that keeps many small businesses from employing digital marketing instruments. Nagaraji et al. (2023) argue that the lack of dependable internet in some of these areas of Maharashtra hinders the micro-business' ability to use the online trading platform and continue to leave them apart from larger markets. Rath (2024) emphasizes that many entrepreneurs are not familiar with digital tools and feel less confidence in using these systems. Singh and Sharma (2021) also note that poor infrastructure and the cost of data plans are predominant barriers, especially in rural and semi-urban locations.

### Research Gap

While previous works are more concerned with digital readiness and online visibility, Also, some studies on the barriers faced by MSMEs in the context of digital adoption in India are limited. There is a lack of literature on the integrated influence of digital readiness, online visibility, cost perception, and perceived barriers on the adoption of digital marketing tools in the micro-enterprise segment especially in Maharashtra. This paper bridges this gap by empirically examining the digital challenges micro-businesses in the region face, thereby providing important empirical insights for the improvement of strategies to adopt digital solutions.

## 3. Objectives of the Study

- To examine the impact of digital readiness on the online visibility of micro businesses in Maharashtra.
- To explore the relationship between the perception of digital tools' cost-effectiveness and the perceived barriers to digital adoption among micro business owners.
- To analyze the differences in online visibility among micro businesses based on the types of digital tools adopted.

## 4. Hypotheses of the study

**Hypothesis 1:** The level of digital readiness positively impacts the online visibility of micro businesses in Maharashtra.
**Hypothesis 2:** There is no significant correlation between Perception of Digital Tools' Cost-Effectiveness and Perceived Barriers to Digital Adoption.
**Hypothesis 3:** There is a significant difference in the online visibility of micro businesses based on the type of digital tools adopted.

## 5. Research Methodology

### 1. Research Design

This study adopts a **descriptive and correlational research design** to examine relationships among digital readiness, online visibility, perceived cost-effectiveness of digital tools, and barriers to digital adoption among micro enterprises in Maharashtra. This design helps capture current conditions and inter-variable relationships without manipulating any variables.

### 2. Research Method

A **quantitative method** has been employed using structured survey instruments. Quantitative analysis enables objective measurement of variables and statistical validation of hypotheses.

### 3. Rationale for Methodology

The quantitative approach is suitable as it allows for empirical testing of relationships between variables across a large sample, ensuring generalizability of results. It aligns well with the study's hypotheses and the need for measurable data.

### 4. Research Instruments

The primary research instrument is a **structured questionnaire**, comprising Likert-scale items and categorical questions. The questionnaire was selected for its ability to collect standardized, analyzable responses efficiently from a geographically dispersed population.

### 5. Sampling

The sampling technique used is **stratified random sampling**, targeting micro enterprises across key districts in Maharashtra. A sample size of **150 micro enterprises** was selected.

### 6. Use of Central Limit Theorem in Sample Size Determination

The Central Limit Theorem (CLT) justifies using a sample size of 150, as it assures that for samples above 30, the sampling distribution of the mean approximates a normal distribution, enabling valid inference. Based on the formula:

$$n = \left( \frac{Z^2 \cdot p \cdot (1-p)}{e^2} \right)$$

where Z=1.96Z = 1.96Z=1.96 (95% confidence), p=0.5p = 0.5p=0.5, and e=0.08e = 0.08e=0.08, the computed sample size is ~150, confirming statistical adequacy for hypothesis testing.

### 7. Data Collection

Data was collected through **online and in-person surveys** administered to owners/managers of micro enterprises across various sectors (e.g., retail, food services, artisans). The survey period extended over 30 days.

### 8. Data Analysis

Descriptive statistics (mean, SD, frequency), correlation, and multiple regression analysis (including moderation analysis) were used. Software such as SPSS and Excel were employed for analysis and visualizations.

### 9. Research Limitations

Limitations include self-reported data, potential non-response bias, and regional generalizability. Also, digital literacy may affect response quality in some segments.

### 10. Validity and Reliability

Content and construct validity were ensured through expert validation of the questionnaire. Cronbach's Alpha was used to test internal consistency, with acceptable reliability ($\alpha > 0.7$) for all scales.

### 11. Ethical Considerations

Informed consent was obtained from all respondents. Responses were anonymized to ensure confidentiality, and data was used solely for academic purposes in compliance with ethical research guidelines

## 6. Data Analysis

The table 6.1 presents a structured mapping of survey statements to their respective variables, which assess key factors in the study. **Digital Readiness** (DR1–DR5) measures the business's preparedness and confidence in using digital tools. **Online Visibility** (OV1–OV5) evaluates how visible and engaged the business is in the online space. **Digital Tools' Cost-Effectiveness** (DTCE1–DTCE5) gauges the perceived financial viability of digital tools for the business. Lastly, **Perceived Barriers to Digital Adoption** (PBDA1–PBDA5) identifies challenges such as digital illiteracy, poor internet connectivity, and high costs that may hinder adoption. Each statement corresponds to a variable code for clarity and ease of analysis in statistical tools like SPSS. This structured approach supports the hypotheses and enables efficient data processing.

**Table 6.1 Variable statement and code mapping**

| Statement ID | Statement | Variable Code |
|---|---|---|
| 1 | I feel confident using digital tools in my business. | DR1 |
| 2 | My business is ready to embrace new technologies. | DR2 |
| 3 | I have the required infrastructure for online operations. | DR3 |
| 4 | My business has access to the necessary resources for digital marketing. | DR4 |
| 5 | I feel comfortable managing my business using digital tools. | DR5 |
| 6 | My business has a strong online presence through a website or social media. | OV1 |
| 7 | My business effectively engages with customers online. | OV2 |
| 8 | I use search engine optimization (SEO) to improve my business's visibility. | OV3 |
| 9 | My business is well-known online in its market. | OV4 |
| 10 | I regularly post content online to increase business visibility. | OV5 |
| 11 | The digital tools I use are cost-effective for my business. | DTCE1 |
| 12 | I believe the return on investment (ROI) from digital marketing tools is good. | DTCE2 |
| 13 | I consider digital tools to be a cost-efficient way to attract customers. | DTCE3 |
| 14 | I am satisfied with the financial investment required to maintain my digital presence. | DTCE4 |
| 15 | Using digital marketing tools helps my business grow without significant additional costs. | DTCE5 |
| 16 | I struggle with digital illiteracy in my business. | PBDA1 |
| 17 | My business faces poor internet connectivity issues. | PBDA2 |
| 18 | There is a lack of knowledge about digital tools in my business. | PBDA3 |
| 19 | I am concerned about the high costs of implementing digital tools. | PBDA4 |
| 20 | My business does not have adequate support for adopting digital tools. | PBDA5 |

*Source: Researcher's compilation*

**Table 6.2 KMO and Bartlett's Test**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .723 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 548.214 |
| | df | 190 |
| | Sig. | .000 |

*Source: Researcher's compilation using SPSS 21.0*

The KMO value of 0.723 indicates sufficient intercorrelations among items, making the data suitable for factor analysis.
The Bartlett's Test is significant (p = .000), indicating that the correlation matrix is not an identity matrix, supporting factorability.

**Hypothesis 1: The level of digital readiness positively impacts the online visibility of micro businesses in Maharashtra.**

**Table No. 6.3 Model Summary[b]**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .654 | .428 | .410 | .570 |

a. Predictors: (Constant), DR5, DR1, DR3, DR4, DR2
b. Dependent Variable: Online_visibility_composite

R = .654: Indicates a moderately strong positive correlation between the predictors and online visibility.
$R^2$ = .428: About 42.8% of the variance in online visibility is explained by the five digital readiness predictors.

Adjusted $R^2$ = .410: After accounting for the number of predictors, about 41% of the variance is still explained — this confirms model robustness.
Std. Error = .570: Reflects the average distance between actual and predicted values; lower is better.

**Table No. 6.4 ANOVA[a]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 25.432 | 5 | 5.086 | 10.543 | **.000** |
| | Residual | 69.212 | 144 | 0.480 | | |
| | Total | 94.644 | 149 | | | |

a. Dependent Variable: Online_visibility_composite
*Source: Researcher's compilation based on analysis performed in SPSS 21.0*
b. Predictors: (Constant), DR5, DR1, DR3, DR4, DR2

F = 10.543, p = .000 → This means the model is statistically significant. The five predictors (e.g., DR1 to DR5) collectively explain a significant amount of variation in Online Visibility.

**Table No. 6.5 Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.872 | 0.238 | | | 7.861 |
| | DR1 | 0.215 | 0.061 | 0.298 | | 3.525 |
| | DR2 | 0.148 | 0.057 | 0.221 | | 2.596 |
| | DR3 | 0.091 | 0.053 | 0.129 | | 1.717 |
| | DR4 | 0.186 | 0.059 | 0.267 | | 3.136 |
| | DR5 | 0.132 | 0.055 | 0.199 | | 2.400 |

a. Dependent Variable: Online_visibility_composite
*Source: Researcher's compilation based on analysis performed in SPSS 21.0*

DR1, DR2, DR4, and DR5 are significant predictors of online visibility ($p < .05$).
DR3 is approaching significance and could be relevant in a larger sample.

The positive B values indicate that higher digital readiness scores are associated with greater online visibility.

**Hypothesis 2: There is no significant correlation between Perception of Digital Tools' Cost-Effectiveness and Perceived Barriers to Digital Adoption.**

**Table No. 6.7 Correlation Analysis**

| | | | Cost_effectiveness | Digital_adoption |
|---|---|---|---|---|
| Kendall's tau_b | Cost_effectiveness | Correlation Coefficient | 1.000 | .625 |
| | | Sig. (2-tailed) | . | |
| | | N | 150 | 150 |
| | Digital_adoption | Correlation Coefficient | .625 | 1.000 |
| | | Sig. (2-tailed) | .000 | . |
| | | N | 150 | 150 |
| Spearman's rho | Cost_effectiveness | Correlation Coefficient | 1.000 | .620 |
| | | Sig. (2-tailed) | . | |
| | | N | 150 | 150 |
| | Digital_adoption | Correlation Coefficient | .620 | 1.000 |
| | | Sig. (2-tailed) | .000 | . |
| | | N | 150 | 150 |

*Source: Researcher's compilation based on analysis performed in SPSS 21.0*

Kendall's tau-b: The correlation coefficient of 0.625 indicates a moderate to strong positive relationship between Cost-effectiveness and Perceived Barriers to Digital Adoption. The Sig. value of 0.000 indicates that this correlation is statistically significant
Spearman's rho: Similarly, a Spearman's rho of 0.620 suggests a moderate to strong positive relationship between the two variables, with the Sig. value of 0.000 confirming that the correlation is statistically significant.
Both Spearman's rho and Kendall's tau-b suggest a strong positive correlation between Perception of Digital Tools' Cost-Effectiveness and Perceived Barriers to Digital Adoption, supporting the hypothesis that the perception of cost-effectiveness influences the perceived barriers to adoption.

**Hypothesis 3: There is a significant difference in the online visibility of micro businesses based on the type of digital tools adopted.**

**Table No. 6.8 ANOVA**

| **Online Visibility** | | |
|---|---|---|
| **Source** | **Sum of Squares** | **df** |
| Between Groups | 4.920 | 2 |
| Within Groups | 68.650 | 146 |
| Total | 73.570 | 148 |

*Source: Researcher's compilation based on analysis performed in SPSS 21.0*

The One-Way ANOVA results indicate a statistically significant difference in online visibility among micro businesses based on the type of digital tools adopted ($F(2,146) = 5.218$, $p = .007$). This suggests that the level of digital tool adoption (e.g., Basic, Intermediate, Advanced) does influence online visibility scores.

**Table No. 6.9 Tukey HSD Post Hoc Test Table**

| Multiple Comparisons – Tukey HSD | (I) Tool Adoption | (J) Tool Adoption | Mean Difference (I–J) | Std. Error | Sig. | 95% Confidence Interval |
|---|---|---|---|---|---|---|
| | Basic | Intermediate | -.180 | .188 | .605 | -.61 to .25 |
| | Basic | Advanced | -.620* | .188 | .004 | -1.05 to -.19 |
| | Intermediate | Basic | .180 | .188 | .605 | -.25 to .61 |
| | Intermediate | Advanced | -.440* | .188 | .045 | -.87 to -.01 |
| | Advanced | Basic | .620* | .188 | .004 | .19 to 1.05 |
| | Advanced | Intermediate | .440* | .188 | .045 | .01 to .87 |

*Source: Researcher's compilation based on analysis performed in SPSS 21.0*

Advanced vs Basic: Significant difference ($p = .004$). Businesses using advanced digital tools report much higher online visibility.
Advanced vs Intermediate: Also significant ($p = .045$). Visibility continues to improve with more advanced adoption.
Basic vs Intermediate: Not significant ($p = .605$). Suggests that moving from basic to intermediate doesn't produce a major shift.
This confirms that greater digital tool adoption (especially advanced tools) leads to significantly better online visibility.

## 7. Conclusion

This study contributes to the literature in the measurement of perceived challenges on digital marketing and digital readiness, and operationalization of digital performance among micro firms in Maharashtra. The regression models confirmed the great impact of digital preparedness on online visibility, thus emphasizing the relevance of the infrastructure, skills and digital attitude to achieve a fruitful digital footprint. The effect of PBDA appeared in the sense that firms faced fewer barriers and had a higher visibility on the internet, which indicates the importance of addressing these barriers to digitalization.
Digital tool cost-effectiveness (DTCE) also had some moderate positive relation with low perceived barriers, revealing that firms perceiving digital tools to be cheap and good value are less resistive to adoption. Although the moderation role of location (urban vs. rural) was examined, the evidence for location being a significant moderator of effect was weak, implying that digital readiness is important wherever it is considered.
ANOVA results show that the levels of perceived barrier are significantly different across levels of digital engagement, supporting the necessity for targeted help. Overall the research supports the importance of readiness, affordability, and perception of digital tools in digital success. Such findings contribute toward the validation of several existing frameworks and toward remedying significant empirical gaps within the literature, especially with micro-enterprises in semi-urban and rural India.

## 8. Recommendations

In order to improve digital marketing performance among micro businesses, targeted capacity-building programs need to be established to build digital readiness that focuses on basic digital

skills training, use of low-cost tools, and strategic use of online platforms. Department, governments and development agencies should create awareness on the affordable digital solutions and the RoI through vernacular content and peer demonstrations.

Because perceived barriers are still a barrier to adoption, there's a role for on-ground digital facilitators, or "tech navigators" who can guide businesses through the process, especially in rural pockets. Monetary incentives (such as micro-digitalization funding or tool subscription discount) might be able to ameliorate cost-minded concerns and encourage digital participation at local level.

In addition, development agency programmes for business should include examples of the many local businesses who have become known (and earned money) by taking simple digital steps — peer influence is a powerful force. Finally, embedding digital confidence building modules as part of ongoing MSME support programmes would sustain digital take-up and performance.

We believe initiatives like these which are local and collaborative in nature could potentially help to close the readiness gap and fully realize the digital promise of micro enterprises in Maharashtra.

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