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Modeling MSME Engagement on the GeM Portal: A Technology Acceptance Perspective

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Abstract

The digital transformation of public procurement has significantly reshaped the interaction between governments and businesses, especially Micro, Small, and Medium Enterprises (MSMEs). In the Indian context, the Government e-Marketplace (GeM) portal stands out as a major initiative designed to promote transparency, streamline procurement procedures, and encourage broader participation. However, the level of engagement among MSMEs on the platform continues to vary considerably.

This study seeks to trace the factors prompting MSME participation on the GeM portal by applying the Technology Acceptance Model (TAM) as the theoretical foundation. To provide a more detailed understanding of technology adoption in a developing economy, the model is extended by including additional variables such as awareness, trust, digital literacy, and organizational readiness.

Data is collected through a organized questionnaire administered to MSMEs, and the conceptual framework is gauged using statistical methods such as regression analysis or structural equation modeling. The study aims to contribute to existing literature on technology adoption and also offers practical suggestions for policymakers to strengthen MSME involvement in digital procurement systems.

Introduction

The fast-paced growth of digital technologies has brought notable changes in governance systems worldwide. Governments are increasingly relying on digital platforms to improve operational efficiency, ensure transparency, and strengthen accountability. In India, the Government e-Marketplace (GeM) portal represents a significant step in this direction, providing an online platform for government departments to procure goods and or services.

Micro, Small, and Medium Enterprises (MSMEs) are vital to economic progress, as they contribute substantially to employment generation, innovation, and overall economic growth. To support their participation, GeM portal has been structured to generate more opportunities for MSMEs in public procurement.

Despite the availability of supportive policies and digital infrastructure, MSME participation on the platform remains inconsistent. Many ventures are neither completely aware of the platform or encounter difficulties in effectively utilizing its features. This situation highlights the value of studying the behavioral and technological factors that effect MSME engagement.

Accordingly, this study uses the TAM as its core theoretical framework and enhances it by incorporating context-specific variables relevant to MSMEs operating in emerging countries.

Literature Review

The implementation of DT (digital technology) has been learnt through several theoretical models, among which the TAM is considered highly influential. Proposed by Fred Davis, TAM identifies appearent usefulness (AU) and its ease of use (AEOU) as the key factors that determine an individual's embracing of information systems[1]. These factors shape users' goals to adopt technology, which in turn influences actual usage behavior, making TAM a widely applied framework in information systems research.

Over the time, scholars have stretched TAM to improve its explanatory strength. For instance, the Unified Theory of Acceptance and Use of Technology (UTAUT) combines elements from multiple models and introduces additional variables such as peer influence and favorable conditions to better explain user behavior[2]. Likewise, the Diffusion of Innovations theory emphasizes how characteristics of an innovation—such as relative advantage, complexity, and compatibility—affect the rate and extent of its adoption[3].

Beyond these models, behavioral frameworks like the Theory of Planned Behavior (TPB) highlight the prominence of individual attitudes, social pressures, and apparent control in shaping behavioral intentions[4–5]. Collectively, these perspectives show that technology adoption is prompted by a combination of technological attributes and human behavioral factors.

In the domain of e-governance, the acceptance of digital platforms is influenced not only by system-related factors but also by elements such as trust and apparent risk. Earlier studies indicate that trustworthiness plays a critical role in inspiring the use of online systems, particularly in government services and e-commerce contexts[8–10]. By reducing uncertainty, trust enhances users' confidence in digital interactions, making it a vital determinant in the adoption of e-procurement systems.

However, MSMEs encounter specific challenges when adopting digital technologies. Constraints such as limited financial capacity, inadequate technical skills, and resistance to change often restrict their ability to adopt new systems[11–13]. Research also shows that factors like digital literacy and organizational readiness significantly affect successful adoption among small and medium enterprises[24–26]. Enterprises that possess better technical preparedness and internal competencies are more equipped to implement and benefit from digital platforms effectively. E-procurement systems are commonly known for improving transparency, efficiency, and accessibility in public procurement. Nevertheless, their effectiveness largely depends on the degree to which users accept and engage with these systems[14–16]. In developing economies, additional factors such as awareness levels, infrastructure availability, and institutional support significantly influence adoption outcomes[17]. The Government e-Marketplace (GeM) portal represents a key initiative aimed at reforming public procurement in India by creating a transparent and efficient digital platform[21]. It is designed to encourage MSME participation in government purchasing processes. Despite these advantages, the level of MSME engagement with the platform remains inconsistent, often due to limited awareness, lack of trust, and gaps in digital capability.

Existing research on MSME digital adoption underscores the importance of external support mechanisms, policy interventions, and capacity-building initiatives in enhancing participation[18–20]. But there is a noticeable gap in studies that pool established theoretical frameworks such as TAM with context-specific factors like awareness, trust, and organizational readiness, mainly with respect to the GeM portal. To address this gap, the current study pertains to an extended TAM framework to examine MSME engagement on the GeM platform. By integrating both technological and contextual dimensions, the study wishes to offer a better understanding of adoption behavior within digital public procurement systems.

Research Gap

Though prevailing studies offer valuable analysis of technology adoption, several important gaps can still be identified. There is limited research focusing on MSMEs within public procurement ecosystems. Additionally, many studies rely on standalone theoretical models, with insufficient integration of frameworks like the TAM with relevant contextual factors.

Further, much of the existing empirical work concentrates primarily on initial adoption, with reasonably less attention given to sustained engagement and usage behavior. Another notable gap is the limited emphasis on developing country contexts, particularly India, where institutional and technological conditions differ significantly from developed economies.

In response to these gaps, the present study proposes an extended TAM framework that incorporates context-specific variables to better understand MSME engagement in digital public procurement platforms.

Conceptual Framework

The proposed framework integrates TAM with additional constructs to better reflect real-world conditions.

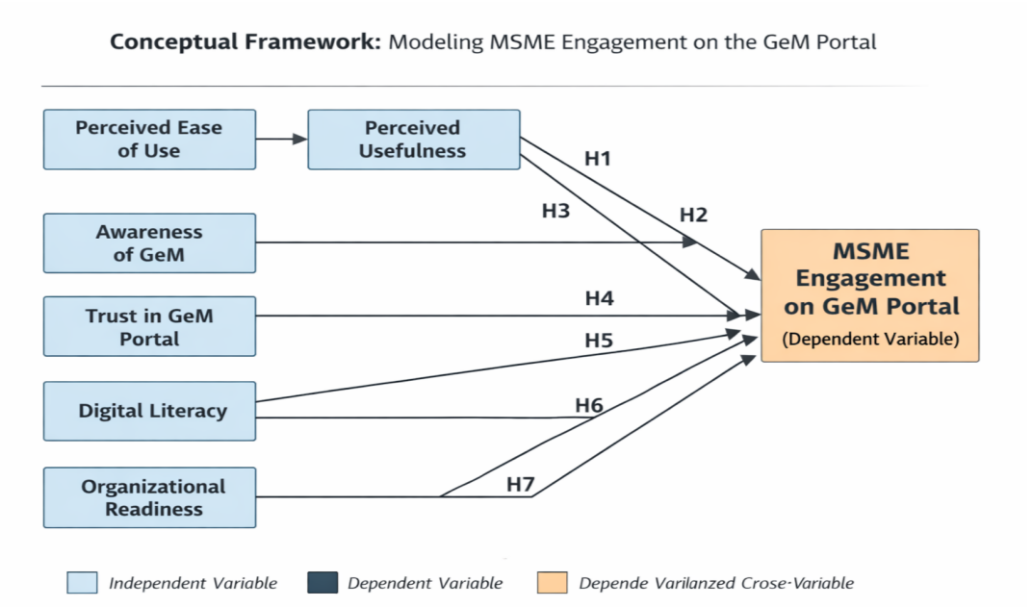

Figure 1.

Proposed Technology Acceptance Framework for MSME Engagement on the GeM Portal

Core TAM Relationships

- PEOU → PU
- PU → Engagement
- PEOU → Engagement

Extended Variables

- Awareness → Engagement
- Trust → Engagement
- Digital Literacy → PEOU
- Organizational Readiness → Engagement

This integrated model provides a widespread understanding of MSME engagement behavior.

Hypotheses Development

Each hypothesis is grounded in theory:

- H1: PEOU positively influences PU (supported by TAM theory)
- H2: PU positively influences engagement (performance-driven adoption)
- H3: PEOU positively influences engagement (ease encourages usage)
- H4: Awareness positively influences engagement (knowledge reduces uncertainty)
- H5: Trust positively influences engagement (critical in e-governance)
- H6: Digital literacy positively influences PEOU (skills improve usability perception)
- H7: Organizational readiness positively influences engagement (resource availability matters)

Research Methodology

1. Research Design

The study follows a quantitative research approach and is conducted as a pilot investigation to examine the factors affecting MSME engagement on the GeM portal. It adopts a descriptive and analytical design, focusing on identifying and analyzing the relationships among key constructs derived from the extended Technology Acceptance Model.

The pilot study methodology is used to obtain initial analysis of the relevance and applicability of the planned thermotical framework. Considering its exploratory nature, the outcomes are preliminary and are intended to give a basis for subsequent large-scale empirical research.

2. Instrument Development

Primary data for the work was gathered through an organized questionnaire prepared using confirmed constructs from existing research on technology adoption. The instrument included multiple items corresponding to the variables as mentioned below.

- Apparent usefulness (AU)
- Apparent Ease of Use (AEOU)
- Awareness
- Trust
- Digital Literacy
- Organizational Readiness
- MSME Engagement

All the items were considered on a five-point Likert scale. The responses were ranging from one (extremely disagree) to five (extremely agree). The questionnaire was tailored to align with the framework of the GeM portal while maintaining content validity.

An initial review of the instrument was conducted to verify the clarity, relevance, and consistency of the variables included.

3. Sampling Design and Data Collection

The study focused on Micro, Small, and Medium Enterprises (MSMEs) that are either registered on or eligible to participate in the GeM portal.

Owing to limitations related to time and accessibility, a non-probability convenience sampling method was employed. Data was gathered through an online survey, allowing for efficient and timely collection of responses from participants.

Overall 96 valid responses were received and were used in the analysis. The sample comprised respondents from a range of sectors, including manufacturing, trading, and services, offering a preliminary representation of MSMEs.

4. Data Analysis Techniques

The information collected was examined using appropriate statistical techniques to study the relationships among the variables and to assess the proposed hypotheses.

The following techniques were employed:

- Descriptive Statistics: To summarize respondent characteristics and variable distributions
- Reliability Analysis: Cronbach's Alpha was used to study internal consistency of the constructs
- Correlation Analysis: To study the potency and direction of relationships among variables
- Regression Analysis: To verify the impact of independent variables on MSME engagement and test the proposed hypotheses

Given the pilot nature of the study, the analysis focused on identifying indicative patterns and relationships rather than making definitive generalizations.

5. Limitations of the Study

As a pilot investigation, the study is subject to certain limitations. The reliance on a convenience sampling technique, along with a fairly small sample size, confines the degree to which the findings can be generalized. In addition, the usage of self-reported data may introduce the possibility of respondent bias.

Nevertheless, the study offers meaningful preliminary insights and serves as a basis for future work concerning a larger and more representative sample.

6. Ethical Considerations

Contribution in the survey was entirely voluntary, and respondents were obviously informed about the goal of the study. The confidentiality and anonymity of all responses were ensured, and the collected data was used solely for academic research purposes.

Results and Discussion

1. Descriptive Statistics

The study was conducted to verify the proposed conceptual framework. Data was assembled through a structured questionnaire, yielding 96 valid responses from MSMEs across selected sectors. The sample included a diverse mix of MSME's with differing levels of familiarity and experience with digital platforms.

The descriptive analysis indicates moderate agreement across the constructs:

- Apparent usefulness (AU): Mean ≈ 3.8
- Apparent Ease of Use (AEOU): Mean ≈ 3.7
- Awareness: Mean ≈ 3.4
- Trust: Mean ≈ 3.5
- Digital Literacy: Mean ≈ 3.6
- Organizational Readiness: Mean ≈ 3.5
- MSME Engagement: Mean ≈ 3.6

The preliminary findings indicate that MSMEs generally view the GeM portal as both useful and easy to use. However, comparatively lower levels of cognizance emerge as a important constraint, potentially limiting broader participation.

2. Reliability Analysis

The reliability of the measurement constructs was evaluated using Cronbach's Alpha. All constructs recorded values exceeding the acceptable threshold of 0.70, indicating that the tool proves reasonable internal consistency for the pilot study.

3. Correlation Analysis

The correlation analysis hinted positive association among the key variables. Precisely, apparent usefulness, trust, apparent ease of use, and awareness showed considerable positive relations with MSME engagement.

These results indicate initial agreement to the hypothesized relationships in the conceptual outline and underline the need for additional verification through a larger-scale empirical study.

4. Regression Analysis and Hypothesis Testing

A pilot regression analysis was conducted to study the effect of independent variables on MSME engagement.

The results show that:

- Apparent usefulness shows a strong positive impact on engagement
- Apparent ease of use has both positive and negative consequences (through usefulness)

- Awareness and trust exhibit positive contributions to engagement
- Digital literacy appears to enhance apparent ease of use
- Organizational readiness contributes to engagement at a moderate level

While the statistical significance of all relationships cannot be conclusively established in this pilot phase, the findings provide indicative agreement with the proposed hypotheses.

5. Discussion of Findings

The results of the pilot study are very much in agreement with the assumptions of the TAM, showing that both apparent usefulness and apparent ease of use significantly influence MSME engagement with the GeM portal.

Amid these factors, apparent usefulness arose as a particularly strong determinant, suggesting that MSMEs are more biased to engage with the platform when they recognize clear benefits such as enhanced market access and improved operational efficiency. apparent ease of use also shows a positive influence, underscoring the worth of a simple and user-friendly system interface.

Beyond the core TAM variables, the additional constructs included in the extended model offer important insights. Awareness levels appear comparatively lower, indicating that a considerable number of MSMEs may lack adequate knowledge about the characters and benefits of the GeM portal. This points to the requirement of more focused awareness and outreach initiatives.

Trust is another influential factor, especially within the framework of e-governance, where perceptions of clearness and system reliability play a vital role in encouraging participation.

Moreover, digital literacy helps as a foundational enabler, as it enhances the power of users to effectively navigate and use the platform, thereby indirectly supporting engagement. In a similar vein, organizational readiness—reflected in the availability of resources and preparedness—contributes to the likelihood of MSMEs adopting and actively using the system.

Overall, this study shows that while the extended TAM is suitable for explaining MSME engagement, the involvement of contextual variables substantially improves its explanatory capability. These findings give a practical begining point for future study involving a larger and more representative sample.

Conclusion

This study examined MSME engagement on the GeM portal using an extended TAM framework. By incorporating additional variables such as awareness, trust, digital literacy, and organizational readiness, it sought to develop a more inclusive consideration of technology adoption within the background of digital public procurement.

The study shows that apparent usefulness and apparent ease of use continue to be key determinants of MSME engagement, in agreement with the core propositions of TAM. However, other factors—particularly awareness and trust—also play an vital role in shaping participation on the GeM platform. The comparatively lower levels of awareness observed suggest that information gaps may still act as a barrier to wider MSME involvement.

The results further emphasize the significance of digital literacy and organizational readiness as enabling conditions that facilitate effective engagement with the platform. These findings highlight the need for an united approach that puts together technological enhancements with capacity-building efforts. While the study gives important preliminary insights, its conclusions are based on a limited sample and should therefore be interpreted with caution. As a pilot investigation, it provides a beginning point for future work encompassing larger and diverse samples to validate and extend the findings.

Overall, the study adds to the literature on technology adoption in e-governance by demonstrating the usefulness of an extended TAM framework in explaining MSME engagement in digital procurement systems. It also gives practical understandings for policymakers and platform administrators, particularly with regards to promoting participation through focused awareness initiatives, strengthening trust, and enhancing digital capabilities among MSMEs.

References

Fred Davis (1989). *Perceived usefulness, Perceived ease of use, and user acceptance of information technology*. MIS Quarterly.

Viswanath Venkatesh, Morris, M., Davis, G., & Davis, F. (2003). *User acceptance of information technology: Toward a unified view*. MIS Quarterly.

Everett Rogers (2003). *Diffusion of Innovations* (5th ed.). Free Press.

Ajzen, I. (1991). *The theory of planned behavior*. Organizational Behavior and Human Decision Processes.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior*. Addison-Wesley.

Venkatesh, V., & Davis, F. (2000). *A theoretical extension of the Technology Acceptance Model*. Management Science.

Venkatesh, V., Thong, J., & Xu, X. (2012). *Consumer acceptance and use of information technology: Extending UTAUT*. MIS Quarterly.

Carter, L., & Bélanger, F. (2005). *The utilization of e-government services: Citizen trust, innovation, and acceptance factors*. Information Systems Journal.

Gefen, D., Karahanna, E., & Straub, D. (2003). *Trust and TAM in online shopping*. MIS Quarterly.

Pavlou, P. (2003). *Consumer acceptance of electronic commerce: Integrating trust and risk with TAM*. International Journal of Electronic Commerce.

Tornatzky, L., & Fleischer, M. (1990). *The processes of technological innovation*. Lexington Books.

Zhu, K., Kraemer, K., & Xu, S. (2006). *The process of innovation assimilation by firms*. MIS Quarterly.

Bharati, P., & Chaudhury, A. (2006). *Studying the current status of technology adoption*. Information Resources Management Journal.

AlAwadhi, S., & Morris, A. (2009). *Factors influencing the adoption of e-government services*. Journal of Software.

Dwivedi, Y. K., et al. (2017). *Research on information systems failures and successes*. Information Systems Frontiers.

Shareef, M., Kumar, V., Dwivedi, Y., & Kumar, U. (2011). *E-government adoption model (GAM)*. Government Information Quarterly.

Bwalya, K. J. (2009). *Factors affecting adoption of e-government in developing countries*. Electronic Journal of Information Systems in Developing Countries.

OECD (2019). *SME and Entrepreneurship Outlook*. OECD Publishing.

World Bank (2020). *Small and Medium Enterprises (SMEs) Finance*. World Bank Reports.

Ministry of MSME, Government of India (Annual Reports, latest editions).

Government e-Marketplace (GeM) (Official Reports and Portal Documents).

Gupta, K. P., & Arora, N. (2017). *Investigating consumer adoption of mobile banking using TAM*. Global Business Review.

Rana, N. P., Dwivedi, Y. K., & Williams, M. D. (2015). *A meta-analysis of e-government adoption*. International Journal of Information Management.

Ahmad, S. Z., Abu Bakar, A. R., Faziharudean, T. M., & Zaki, K. A. (2015). *An empirical study of factors affecting e-commerce adoption among SMEs*. Procedia Economics and Finance.

Scupola, A. (2009). *SMEs' e-commerce adoption: Perspectives from Denmark and Australia*. Journal of Enterprise Information Management.

Ghobakhloo, M., Arias-Aranda, D., & Benitez-Amado, J. (2011). *Adoption of e-commerce applications in SMEs*. Industrial Management & Data Systems.

Kurnia, S., Choudrie, J., Mahbubur, R., & Alzougool, B. (2015). *E-commerce technology adoption: A Malaysian grocery SME perspective*. Journal of Retailing and Consumer Services.

Oliveira, T., & Martins, M. F. (2011). *Literature review of IT adoption models at firm level*. Electronic Journal of Information Systems Evaluation.