IOSR Journal of Business and Management (IOSR-JBM)
e-ISSN:2278-487X, p-ISSN: 2319-7668. Volume 27, Issue 8. Ser. 1 (August. 2025), PP 58-69
www.iosrjournals.org

Public Procurement In The Digital Age: A Deep Dive Into User Experience And E-Service Excellence On The Government E-Marketplace (GeM)

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Abstract:
Background*: Public procurement plays a vital role in the socio-economic development of nations by ensuring the timely and cost-effective delivery of goods and services for public welfare. Traditionally, procurement in many developing countries, including India, relied on manual and offline processes, which were time-consuming and often susceptible to procedural inefficiencies and corruption. As part of its Digital India initiative, the Government of India launched the Government e-Marketplace (GeM) in 2016 as a centralized online platform to facilitate public procurement. GeM was introduced to overcome inefficiencies in traditional tendering systems and ensure transparent, paperless, and contactless procurement processes. The platform enables government departments, ministries, and public sector undertakings to procure goods and services online from registered sellers across the country.*
Materials and Methods*: This research explores the e-service quality of India's Government e-Marketplace (GeM) through the lens of registered buyers. Based on feedback from 250 GeM users, the study assesses fourteen key dimensions, including delivery timeliness, order accuracy, platform design, user support, and the availability of training.*
Results*: The descriptive analysis shows that users are highly satisfied with delivery-related services, reflecting efficient logistical operations. In contrast, lower satisfaction scores for training availability, information accessibility, and pricing transparency highlight areas needing improvement. The findings also reveal notable differences in satisfaction levels based on users' experience and their preferred learning methods, underlining the importance of customized training initiatives. Overall user satisfaction recorded a moderate mean score (M = 3.81), indicating opportunities for enhancing service quality.*
Conclusion: *This study offers several important contributions to the literature on e-service quality in public procurement, specifically in the context of the Government e-Marketplace (GeM). It adds to the expanding literature on public e-procurement by offering both practical insights and theoretical contributions aimed at improving platform usability, training frameworks, and overall service performance.*
Key Words: *Public Procurement, E-Service Quality, Government e-Marketplace (GeM), User Satisfaction.*

Date of Submission: 25-07-2025 Date of Acceptance: 05-08-2025

I. Introduction

Public procurement in India accounts for approximately 20–22% of the national GDP, amounting to an estimated USD 500 billion (Government of India, 2023). Given its scale and critical role in national development, an efficient, transparent, and accountable procurement system is essential. Historically, India's public procurement relied heavily on manual processes such as offline tendering, which were time-consuming, costly, and vulnerable to inefficiencies and corruption. In response to these long-standing challenges, the Government of India launched the Government e-Marketplace (GeM) on August 9, 2016, as a dedicated online platform for public procurement. GeM was developed to enhance transparency, reduce administrative and transaction costs, and promote fair competition by bringing buyers and sellers together on a unified, digital interface. As a core initiative under the Digital India mission, GeM facilitates cashless, contactless, and paperless end-to-end procurement transactions, minimizing human intervention and streamlining the purchasing process. The platform's significance was further reinforced through Rule 149 of the General Financial Rules (GFR), 2017, which mandates government entities to procure goods and services exclusively through GeM. By addressing inefficiencies such as supplier constraints, cost variations, and procedural delays, GeM serves as a transformative tool for modernizing India's public procurement landscape.

GeM aims to provide reliable access to authentic sellers, standardized procurement procedures, competitive pricing, and robust support services through a unified online platform. To fulfill these goals

effectively, the platform must deliver a user-friendly and efficient digital experience. Although GeM's adoption has grown substantially, it remains unclear how users perceive the quality of services offered through the platform. Prior research suggests that user satisfaction with e-commerce platforms is closely linked to the perceived quality of digital services (Rita et al., 2019; Ahmad et al., 2017). In public-sector e-marketplaces like GeM, service quality plays a pivotal role in fostering platform adoption, ensuring stakeholder satisfaction, and achieving broader objectives of transparency and cost efficiency. However, empirical studies that descriptively assess user experiences on GeM remain limited. Unlike commercial platforms, GeM operates within a framework of public accountability and procurement norms, making it essential to understand how users evaluate various aspects of the platform's service delivery. This study addresses this gap by presenting a descriptive assessment of user perceptions across key e-service quality dimensions on the GeM portal.

This study aims to address the following research questions and gaps in existing literature and provide actionable insights for enhancing GeM's service quality

1. What are the perceptions of users regarding the various dimensions of e-service quality and their overall satisfaction with the GeM platform?
2. In what ways do user demographics—specifically prior user experience and mode of learning shape perceptions and engagement with GeM?
3. What changes can be made to GeM's services to make users more satisfied for public procurement?

This paper is structured as follows: The next section provides a comprehensive examination of existing research on public procurement and digital transformation, e-service quality & user satisfaction in public procurement platforms, with a focus on GeM. The third section outlines the research design, data collection techniques, and analysis methods employed to assess user perceptions of service quality on the GeM platform. The fourth section presents the key results from the analysis, highlighting the factors that influence user satisfaction and the challenges faced by users in engaging with the platform. In the fifth section, the paper summarizes the conclusions & implications of the findings for policy and practice, offering recommendations for improving GeM's service quality. Finally, the Limitations and Future Directions section discusses the study's limitations and suggests avenues for future research, particularly in expanding the scope to include a more diverse user base and exploring the long-term impacts of GeM adoption on public procurement.

II. Literature Review

Public Procurement and Digital Transformation

Public procurement plays a vital role in the socio-economic development of nations by ensuring the timely and cost-effective delivery of goods and services for public welfare. With governments across the world spending a significant portion of their GDP on procurement activities, the need for transparency, efficiency, and accountability in these processes has become paramount. Traditionally, procurement in many developing countries, including India, relied on manual and offline processes, which were time-consuming and often susceptible to procedural inefficiencies and corruption (Kartika, 2020; Panda et al., 2010).

To address these challenges, digital procurement systems have emerged as transformative tools, helping governments streamline operations and achieve better value for public expenditure. E-procurement platforms are recognized for their potential to reduce transaction costs, enhance competitiveness, and promote transparency in procurement (Bakar et al., 2016; Prier & McCue, 2009). The shift toward such platforms marks an important evolution in public sector governance and digital service delivery.

As part of its Digital India initiative, the Government of India launched the Government e-Marketplace (GeM) in 2016 as a centralized online platform to facilitate public procurement. GeM was introduced to overcome inefficiencies in traditional tendering systems and ensure transparent, paperless, and contactless procurement processes. The platform enables government departments, ministries, and public sector undertakings to procure goods and services online from registered sellers across the country.

By mandating procurement through GeM via Rule 149 of the General Financial Rules (GFR), 2017, the Indian government institutionalized digital procurement at a national scale. The platform seeks to ensure the efficient utilization of public funds, promote fair competition, and standardize procurement procedures. With features such as real-time pricing, standardized product listings, vendor ratings, and automated workflows, GeM aims to modernize the procurement ecosystem in India.

E-Service Quality and User Satisfaction

The quality of services delivered through digital platforms has become a key determinant of user satisfaction, trust, and continued usage. It has attracted considerable interest in the literature on e-commerce due to its bearing on several favorable outcomes like customer satisfaction (Mir et al., 2023), behavioural intentions (Kaya et al., 2019), perceived value (Li & Shang, 2019), customer loyalty (Mir, 2014) and organizational performance (Mir and Rainayee, 2016; Ahmad and Raja 2021). E-service quality refers to the extent to which a website or platform facilitates effective and efficient purchasing and service delivery (Zeithaml et al., 2002).

Parasuraman et al. (1988, 1991) emphasized that service quality arises from the gap between customer expectations and actual experiences, a principle applicable to both offline and online service contexts.

Various dimensions of e-service quality have been proposed in literature, including reliability, responsiveness, ease of use, assurance, personalization, and support services (Brady & Robertson, 2001; Zeithaml et al., 2002; Ahmad et al., 2017). In digital platforms, factors like platform availability, information accuracy, navigation ease, responsiveness, and customer support significantly influence user experiences. Rita et al. (2019) argued that superior service quality enhances satisfaction, loyalty, and users' behavioral intentions.

Dimensions of E-Service Quality

E-service quality in public procurement is a multidimensional construct that captures the functional, technical, and experiential aspects of users' interactions with digital procurement platforms. Based on a combination of prior e-service quality frameworks (Parasuraman et al., 2005; Yoo & Donthu, 2001) and contextual adaptations for the Government e-Marketplace (GeM), this study identifies fourteen key dimensions. Platform Availability refers to the accessibility and uptime of the GeM platform, ensuring users can reliably access its features and services without interruptions or technical issues. Prior studies (Zemblytė, 2015; Parasuraman et al., 2005) emphasize reliability and system accessibility as critical elements of e-service quality. Information Availability encompasses the extent to which accurate, comprehensive, and up-to-date information is provided, facilitating informed decision-making. Training Availability pertains to the accessibility and adequacy of user training resources, enabling effective utilization of the platform.

Platform Design pertains to the visual appeal, layout, color schemes, typography, and usability of the portal, all of which contribute to a pleasant and intuitive user experience. A well-designed interface facilitates smooth navigation and improves engagement (Mpinganjira, 2015). Product/Service Selection captures the breadth, relevance, and organization of available offerings. A diverse and logically categorized product range helps meet user needs and enhances platform utility (Wu et al., 2010). These dimensions have been shown to significantly influence perceptions of e-service quality across various digital platforms (Rita et al., 2019; Blut, 2016; Wen, 2014).

Purchase Process involves the steps users take to select, purchase, and confirm their order, including adding items to the cart, choosing payment methods, and receiving order confirmation. Price Offerings refer to the clarity, visibility, and competitiveness of pricing, including discounts, shipping costs, and total cost breakdowns. Transparent pricing boosts user confidence and helps users make informed decisions. Parasuraman et al. (2005) highlight that clear pricing is essential for operability, influencing both purchasing decisions and perceived fairness.

Delivery Condition refers to the state of products upon arrival, ensuring they are intact, undamaged, and match the product description (Blut, 2016). Delivery Timeliness focuses on whether products are delivered within the promised timeframe. Delivery Accuracy measures the correctness of the product, quantity, and specifications, ensuring the order matches what was requested. These dimensions are crucial to e-service quality, as they influence user satisfaction and reduce the likelihood of returns and disputes (Rita et al., 2019; Khan et al., 2019; Li & Shang, 2019; Blut, 2016)

Privacy reflects the security of user data, emphasizing confidentiality, transparency, and compliance with privacy regulations (Zeithaml et al., 2002). It is a crucial factor influencing trust and user satisfaction (Hammoud et al., 2018). User Support refers to the availability and efficiency of customer service channels such as live chat, email, and phone support, vital for addressing user issues promptly (Blut, 2016). Return Handling involves the ease and efficiency of managing returns, including clear policies and fast processing. Incident Mechanism pertains to the systems in place to handle disputes or issues like transaction errors or product quality concerns. Effective management of these incidents enhances e-SQ by assuring users that problems will be resolved fairly and promptly (Holloway & Beatty, 2008).

E-Service Quality in Public Procurement Platforms

While the e-service quality literature has extensively examined platforms in sectors such as retail (e.g., Amazon, Flipkart), banking, healthcare, and education, there is limited research focusing on government-owned procurement platforms. Public sector e-marketplaces operate under stricter regulatory frameworks and accountability mechanisms, making service quality concerns uniquely significant. In platforms like GeM, ensuring platform usability, system reliability, grievance redressal, and vendor support are crucial for effective stakeholder engagement.

GeM, being a government-operated platform, differs substantially from its private-sector counterparts. Apart from functionality, compliance with public procurement norms and transparency guidelines add complexity to the user experience. Despite its growing importance, few empirical studies have explored how users perceive the quality of services on GeM or assessed the platform's performance from a service quality lens.

A review of the existing literature reveals a significant gap in studies that descriptively evaluate user experiences and perceptions regarding the Government e-Marketplace (GeM). While conceptual and technical discussions around GeM's implementation exist, there is a dearth of empirical work focusing on how users assess its service delivery. Moreover, most prior research on e-service quality is concentrated on private-sector platforms, leaving government-run systems underexplored. This study addresses this gap by offering a descriptive analysis of user-reported experiences across key dimensions of e-service quality on the GeM platform. By doing so, it contributes to the literature on digital governance and public service delivery while offering insights to policymakers for improving the platform's usability and effectiveness.

III. Material And Methods

This study adopts a descriptive research design aimed at assessing user perceptions of e-service quality on the Government e-Marketplace (GeM) platform. The objective was to understand how buyers on GeM evaluate various aspects of the platform's service. The primary data was collected through an offline survey conducted among registered buyers on the GeM platform. The survey was administered in physical form at various government departments and offices where procurement personnel actively use the portal. A total of 250 valid responses were obtained and used for the analysis. The sampling technique followed a convenient approach, targeting those buyers who had prior experience using GeM for procurement-related activities.

A structured questionnaire was designed to measure user perceptions across various dimensions of e-service quality. The scale items were pooled from several established instruments available in the literature on e-service quality, public sector digital services, and online platforms (e.g., Parasuraman et al., 1988; Zeithaml et al., 2002; Ahmad et al., 2017). The questionnaire included sections on: Platform Availability, information Availability, Platform Design User Support, Purchase Process, Order Condition, Price Offerings, Overall User Satisfaction etc. Each item was rated using a 5-point Likert scale ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). The instrument was reviewed by domain experts for content validity and pilot-tested before full-scale administration. The data was coded and analyzed using SPSS (Statistical Package for the Social Sciences). The descriptive statistical tools such as means, standard deviations, frequency distributions, and Anova, were used to understand user responses on various dimensions of service quality. The participation in the survey was entirely voluntary, and respondents were informed about the purpose of the study. Anonymity and confidentiality of responses were assured, and no personally identifiable information was collected.

IV. Results & Discussions

Respondent Profile

A total of 250 valid responses were collected from buyers registered on the Government e-Marketplace (GeM). The demographic characteristics of the respondents are summarized below:

Table 1: Demographic Profile of Respondents

Variable	Category	Frequency	Percentage (%)
Experience on GeM	Less than 1 year	45	18.0
	1 to <2 years	62	24.8
	2 to <3 years	57	22.8
	3 to <4 years	35	14.0
	Above 4 years	51	20.4
Mode of Learning	GeM LMS	123	49.2
	Social media	115	46.0
	Colleagues & Friends	8	3.20
	Departmental Training	4	1.60
Organization Type	Higher Education	102	40.8
	School Education	41	16.4
	Health	22	8.8
	Agriculture	15	6.0
	Public Essentials	20	8.0
	Food and Supplies	13	5.2
	Horticulture	7	2.8
	Other	30	12.0

Source: SPSS Output

The majority of respondents had between 1 and less than 2 years of experience on the GeM portal (24.8%), followed by those with 2 to <3 years (22.8%) and those with over 4 years of experience (20.4%). This indicates that the sample includes both relatively new and experienced users, providing a balanced view of user perceptions. Most participants reported learning how to use the portal through the official GeM Learning Management System (49.2%) and social media (46.0%), suggesting that digital and self-guided learning methods dominate GeM onboarding. In terms of organizational affiliation, a significant portion of users belonged to Higher Education Institutions (40.8%), followed by School Education (16.4%) and Health Departments (8.8%), highlighting the diversity of departments actively engaged in public procurement through GeM.

Descriptive Statistics of E-Service Quality Dimensions

The descriptive analysis provides insights into buyers' perceptions of various e-service quality dimensions on the Government e-Marketplace (GeM) platform. Table 2 presents the mean and standard deviation scores for each of the dimensions of e-service quality. The descriptive statistics provide valuable insights into the buyers' perceptions of various aspects of service quality on the GeM portal. The overall trend indicates a generally positive user experience, particularly with operational and delivery-related dimensions, while highlighting key areas that warrant improvement. Among the dimensions, *Delivery Condition* (Mean = 4.05), *Order Accuracy* (Mean = 4.02), and *Timeliness of Delivery* (Mean = 3.96) received the highest average ratings, indicating strong user satisfaction with the fulfillment process on GeM. These results suggest that the platform's logistical and operational components are well-managed, reflecting positively on its backend coordination and delivery partners. Efficient delivery aligns with GeM's broader goals of transparency and procurement efficiency. These findings are consistent with recent research emphasizing the critical role of fulfillment in shaping user satisfaction with e-commerce services. For example, Aji et al. (2023) found that delivery reliability and order accuracy were among the strongest predictors of customer satisfaction in government-operated e-marketplaces. Similarly, Puspitasari and Kusumawardhani (2022) observed that timeliness of delivery significantly influenced user trust and repeat purchase intentions in public sector procurement platforms. These contemporary findings reinforce the importance of robust delivery systems in enhancing service quality perceptions and user satisfaction.

Table 2: *Descriptive* Statistics *of E-Service Quality Dimensions (N = 250)*

Dimensions	Mean	Std. Deviation
Platform Design	3.9547	.78909
Platform Availability	3.8760	.75233
Information Availability	3.4973	.86027
Training Availability	3.1107	.97708
Product Selection	3.4960	.79373
Purchase Process	3.7960	.74942
Price Offerings	3.4293	.94358
User Support	3.8747	.72645
Return Handling	3.5906	.83094
Incident Mechanism	3.7520	.67187
Privacy	3.6573	.83829
Timeliness of Delivery	3.9587	.67106
Order Accuracy	4.0200	.67468
Delivery Condition	4.0533	.66452

Source: SPSS Output

Dimensions such as *Platform Design* (M = 3.95), *User Support* (M = 3.87), *Platform Availability* (M = 3.88), *Incident Mechanism* (M = 3.75), and *Purchase Process* (M = 3.80) fall within a moderately high range, indicating that users generally view these aspects of GeM's e-service quality positively. The relatively high score for Platform Design suggests that users find the interface intuitive, user-friendly, and aesthetically appropriate for professional use. Similarly, Platform Availability reflects consistent system uptime and access, which is fundamental for uninterrupted procurement activities. User Support and Incident Mechanism, although rated positively, register slightly lower scores, indicating that while buyers perceive support systems as responsive, there may still be scope for improvement in terms of resolution speed, follow-up processes, or communication clarity during problem-solving scenarios. A well-designed Purchase Process also contributes to user satisfaction by reducing friction and enhancing the overall transaction experience. These findings align with earlier research. For instance, Ahmad et al. (2017) emphasize that efficient navigation, reliable system performance, and robust technical support are foundational to user trust and engagement in e-government platforms. Similarly, Wolfinbarger and Gilly (2003) stress that ease of use and system dependability significantly influence customer perceptions in digital service environments. More recent research also confirms

that responsive support and seamless platform performance are essential for increasing user retention and satisfaction in public e-procurement systems (Kim & Park, 2022).

The moderate score for *Privacy* suggests that while users are somewhat confident in the GeM platform's ability to protect their personal and organizational data, there remains room for improvement. In public procurement, data privacy is especially critical, as buyers often handle sensitive information. A mean score of 3.57 indicates that users are not fully assured about the platform's privacy safeguards. This is an important insight, particularly in the context of increasing digitalization in government services. Studies like Ganie and Bhat (2023) emphasize that user trust in government e-platforms is closely tied to how well privacy is maintained. Improving transparency around data handling policies and providing clear privacy assurances (e.g., consent mechanisms, secure login protocols) could help address these concerns. *Return Handling* also received a moderately low score, suggesting mixed satisfaction with how the GeM platform facilitates returns and replacements. In public procurement, returning incorrect or damaged items can be bureaucratically challenging, which may explain why this aspect does not score highly. A score of 3.63 indicates that although the return process is functional, it may lack clarity, speed, or convenience. Literature on e-service quality, such as Zhang et al. (2019) and Wolfinbarger and Gilly (2003**)**, stresses that effective return policies and seamless execution are crucial for enhancing user experience and confidence, particularly in B2B and government procurement contexts. Improving return workflows, minimizing delays, and providing buyers with real-time updates on return status could boost satisfaction levels in this area.

Training Availability emerged as the lowest-rated dimension (M = 3.11), highlighting a significant gap in user enablement and capacity-building on the GeM platform. This finding is particularly critical, as the success of any digital service—especially in a public procurement context—hinges on users' ability to navigate and utilize the platform effectively. Although GeM provides structured training resources through its Learning Management System (LMS), the low rating suggests that these modules may not be adequately tailored to user needs, or may lack engagement, accessibility, or practical relevance. It also indicates that informal, peer-based learning modes may be supplementing or even replacing formal training efforts, potentially leading to inconsistencies in user knowledge and confidence. This observation echoes findings from Dwivedi et al. (2015), who emphasize that digital service success is contingent upon adequate user education and support mechanisms, especially for government-led platforms that serve a diverse set of users with varying digital literacy levels. Training interventions in e-governance platforms often fall short due to limited outreach, poor customization, and low interactivity, resulting in reduced platform adoption and ineffective utilization.

In addition to training concerns, other relatively low-rated dimensions include *Price Offerings* (M = 3.43) and *Information Availability* (M = 3.50). These scores may reflect user low satisfaction regarding pricing transparency, perceived value for money, and the clarity, comprehensiveness, or timeliness of information provided during procurement processes. In public procurement, where budgetary constraints and compliance are critical, limited or ambiguous product information can hamper decision-making and lead to procurement inefficiencies. Such concerns are supported by Rita et al. (2019) and Kim & Park (2022), who note that accurate and timely information, along with transparent pricing, are pivotal in building user trust and reducing uncertainty in digital marketplaces. Ensuring that buyers are well-informed and confident in their choices not only enhances satisfaction but also contributes to greater accountability and efficiency—core objectives of platforms like GeM. Overall, these findings underscore the need for enhanced training delivery, better product information management, and more competitive or transparent pricing mechanisms to fully realize the platform's potential and elevate the overall user experience.

Overall Satisfaction of GeM Users

While *Overall Satisfaction* is not part e-service quality dimensions assessed in this study, it serves as a critical outcome variable reflecting users' cumulative evaluation of their experience on the GeM platform. The mean score for overall satisfaction was 3.82 (SD = 0.74), indicating a moderately level of satisfaction among users. This suggests that, on average, users are generally content with the services provided through the GeM platform, though there may still be areas for enhancement. In service quality research, user satisfaction is often conceptualized as a consequence of users' perceptions of various service quality attributes (Parasuraman et al., 1988; Zeithaml et al., 2002). It reflects the emotional and cognitive response that users form after interacting with a system, based on how well it meets or exceeds their expectations. In the context of e-government or e-procurement platforms, satisfaction is a key indicator of system success and is closely linked to continued usage, trust, and perceived value (DeLone & McLean, 2003; Shareef et al., 2011). The moderately high satisfaction score suggests that while the platform is largely fulfilling its intended objectives, there may be room to enhance user support, training delivery, or information transparency—areas that received comparatively lower mean scores in the e-service quality assessment. Improving these aspects may, in turn, boost users' overall satisfaction, as supported by previous findings that identify service content, ease of use, and

responsiveness as strong predictors of satisfaction in public sector digital services (Carter & Bélanger, 2005; Rana et al., 2015).

Demographics Differences in E-Service Quality Perceptions Based on User Experience

To explore whether user experience on the GeM platform influences perceptions of e-service quality, a one-way ANOVA was conducted for each dimension. The analysis compared the mean scores across five experience groups: less than 1 year, 1 to <2 years, 2 to <3 years, 3 to <4 years, and above 4 years. The results in Table 3 revealed statistically significant differences across experience groups for the dimensions of Training Availability ($F = 3.881$, $p = .010$) and Privacy ($F = 2.240$, $p = .034$). These findings suggest that users with different levels of platform experience perceive the availability of training resources and privacy features differently. It is likely that more experienced users have had more exposure to available training modules or have developed more nuanced expectations regarding data privacy and platform safeguards. For the remaining dimensions, no statistically significant differences were observed, indicating that perceptions of most e-service quality aspects are consistent across user experience levels. These findings reinforce the need to enhance user onboarding and communication strategies, particularly around training and privacy, to ensure a uniform experience for both new and seasoned users.

Table 3: Demographics Differences in E-Service Quality Dimensions Across Experience Groups

Latent Construct	Groups	Mean	S. Dev	*F statistic*	*P value*
Platform Availability	"Less than 1 year	3.8056	.69047	.775	.509
	> 1 to < 2 year	3.8778	.80480		
	> 2 to < 3 years	3.8363	.73226		
	> 3 to < 4 years	3.9658	.84395		
	Above 4 years	3.9203	.70688		
Information Availability	less than 1 year	3.4028	.90952	.300	.825
	> 1 to < 2 year	3.6333	.84751		
	> 2 to < 3 years	3.2456	.95644		
	> 3 to < 4 years	3.6752	.69031		
	Above 4 years	3.5797	.77439		
Training Availability	less than 1 year	2.9792	.87629	3.881	.010
	> 1 to < 2 year	3.0556	.93108		
	> 2 to < 3 years	3.0702	1.03267		
	> 3 to < 4 years	3.4957	.95167		
	Above 4 years	3.0435	1.04612		
Platform Design	less than 1 year	3.8819	.77028	1.540	.205
	> 1 to < 2 year	4.0278	.76970		
	> 2 to < 3 years	3.9240	.90198		
	> 3 to < 4 years	4.0085	.76658		
	Above 4 years	3.9275	.72321		
Order Accuracy	less than 1 year	4.0764	.61977	.596	.618
	> 1 to < 2 year	3.9722	.82405		
	> 2 to < 3 years	4.0643	.64990		
	> 3 to < 4 years	4.0769	.59952		
	Above 4 years	3.9203	.61337		
Privacy	less than 1 year	3.6806	.74045	2.240	.034
	> 1 to < 2 year	3.5222	.94154		
	> 2 to < 3 years	3.4503	.82253		
	> 3 to < 4 years	3.9487	.78188		
	Above 4 years	3.8188	.78475		
Product Selection	less than 1 year	3.5156	.69268	1.925	.126
	> 1 to < 2 year	3.5458	.84934		
	> 2 to < 3 years	3.4605	.84883		
	> 3 to < 4 years	3.4615	.79376		
	Above 4 years	3.4837	.77711		
Timeliness of Delivery	less than 1 year	4.0139	.71775	.229	.876
	> 1 to < 2 year	3.8611	.76970		
	> 2 to < 3 years	3.9708	.64942		
	> 3 to < 4 years	4.0769	.58968		
	Above 4 years	3.9130	.57278		
Delivery Condition	less than 1 year	4.1250	.67940	1.298	.276
	> 1 to < 2 year	3.9611	.70535		

	> 2 to < 3 years	4.0819	.57831		
	> 3 to < 4 years	4.1880	.64343		
	Above 4 years	3.9493	.70612		
Incident Mechanism	less than 1 year	3.8264	.61881	.571	.635
	> 1 to < 2 year	3.7167	.73088		
	> 2 to < 3 years	3.7251	.69614		
	> 3 to < 4 years	3.7863	.69873		
	Above 4 years	3.7246	.60981		
User Support	less than 1 year	3.7431	.65681	.858	.463
	> 1 to < 2 year	3.9556	.72477		
	> 2 to < 3 years	3.8889	.67358		
	> 3 to < 4 years	3.9316	.86579		
	Above 4 years	3.8406	.74283		
Return Handling	less than 1 year	3.5938	.71016	1.035	.378
	> 1 to < 2 year	3.6125	.90130		
	> 2 to < 3 years	3.4853	.91703		
	> 3 to < 4 years	3.9167	.77020		
	Above 4 years	3.4130	.73639		
Price Offerings	less than 1 year	3.5556	.84589	1.777	.152
	> 1 to < 2 year	3.4722	1.04565		
	> 2 to < 3 years	3.1813	.92597		
	> 3 to < 4 years	3.6410	.81787		
	Above 4 years	3.3696	.98690		
Purchase Process	less than 1 year	3.7500	.67635	2.017	.112
	> 1 to < 2 year	3.8417	.77428		
	> 2 to < 3 years	3.6798	.81113		
	> 3 to < 4 years	3.8397	.75978		
	Above 4 years	3.8913	.71034		

Source: SPSS Output

Demographics differences in E-Service Quality Perceptions Based on Mode of Learning

To examine whether users' perceptions of e-service quality varied depending on how they learned to use the GeM platform, a one-way ANOVA was conducted across four learning groups: GeM LMS, Social Media, Friends & Peers, and Departmental Training. The results in Table 4 revealed a statistically significant difference in perceptions of Training Availability ($F = 3.881$, $p = .010$). Specifically, users who learned through Friends & Peers reported significantly higher satisfaction with training availability (Mean = 3.55) than those who used social media (Mean = 2.90) or GeM LMS (Mean = 3.16). While most dimensions did not show statistically significant differences across learning modes, the Privacy dimension exhibited a significant variation ($p = 0.044$). This indicates that users' perception of privacy protection on the GeM platform is influenced by how they learned to use the system. Specifically, those who accessed structured training through the GeM LMS or departmental channels reported slightly higher privacy satisfaction than those who relied on informal sources like social media or peer support. This finding underscores the importance of formal learning environments in shaping user confidence in the platform's security features. It suggests that increasing awareness and structured training initiatives could improve user perceptions of privacy, thereby enhancing trust and satisfaction with the platform. No significant group differences were found for other dimensions including Platform Availability, Platform Design, Information Availability, Purchase Process, Order Accuracy, Timeliness of Delivery, Delivery Condition, Incident Handling, User Support Services, Return Handling, and Price Offerings. Likewise, although Overall Satisfaction was highest among those who learned through Friends & Peers (Mean = 4.05), the difference was not statistically significant ($F = 1.159$, $p = .326$).

Table 4: Differences in E-Service Quality Dimensions across different modes of learning

Latent Construct	Groups	Mean	S. Dev	*F statistic*	*P value*
Platform Availability	GeM LMS	3.9027	.75682	.775	.509
	Social media	3.8400	.75579		
	Friends and Peers	3.9677	.75206		
	Dept. training	3.5000	.62361		
Information Availability	GeM LMS	3.5162	.83451	.300	.825
	Social media	3.4433	.91386		
	Friends and Peers	3.6022	.85383		
	Dept. training	3.5000	.45947		
Training Availability	GeM LMS	3.1652	.97399	3.881	.010
	Social media	2.9033	.99527		
	Friends and Peers	3.5484	.82798		
	Dept. training	3.2778	.64693		

Platform Design	GeM LMS	4.0295	.74743	1.540	.205
	Social media	3.8600	.80428		
	Friends and Peers	4.0645	.84511		
	Dept. training	3.5556	.91084		
Order Accuracy	GeM LMS	3.9794	.74573	.596	.618
	Social media	4.0667	.66498		
	Friends and Peers	4.0645	.44238		
	Dept. training	3.7778	.34427		
Privacy	GeM LMS	3.7257	.84307	2.240	.044
	Social media	3.5167	.82249		
	Friends and Peers	3.9032	.85719		
	Dept. training	3.4444	.58373		
Product Selection	GeM LMS	3.5199	.76045	1.925	.126
	Social media	3.4225	.83989		
	Friends and Peers	3.7339	.75811		
	Dept. training	3.0417	.53424		
Timeliness of Delivery	GeM LMS	3.9676	.69001	.229	.876
	Social media	3.9233	.65965		
	Friends and Peers	4.0323	.66307		
	Dept. training	4.0000	.66667		
Delivery Condition	GeM LMS	4.0295	.68510	1.298	.276
	Social media	4.0367	.63722		
	Friends and Peers	4.2473	.66649		
	Dept. training	3.7778	.65546		
Incident Mechanism	GeM LMS	3.7581	.71025	.571	.635
	Social media	3.7200	.63867		
	Friends and Peers	3.8710	.69216		
	Dept. training	3.5556	.27217		
User Support	GeM LMS	3.9292	.71748	.858	.463
	Social media	3.8167	.77326		
	Friends and Peers	3.9247	.63660		
	Dept. training	3.5556	.45542		
Return Handling	GeM LMS	3.5899	.83220	1.035	.378
	Social media	3.5550	.82234		
	Friends and Peers	3.7823	.88915		
	Dept. training	3.2083	.55715		
Price Offerings	GeM LMS	3.4661	.91995	1.777	.152
	Social media	3.3033	1.03268		
	Friends and Peers	3.7312	.65217		
	Dept. training	3.2778	.87981		
Purchase Process	GeM LMS	3.8230	.71314	2.017	.112
	Social media	3.7100	.80302		
	Friends and Peers	4.0403	.68037		
	Dept. training	3.4583	.60035		

Source: SPSS Output

The findings suggest that the method of learning significantly influences users' perceptions of specific aspects of GeM's e-service quality. Notably, users who relied on informal peer-based learning (e.g., social media, colleagues, and friends) reported higher satisfaction with training availability, indicating that informal networks can effectively support skill development and knowledge sharing related to platform usage. Conversely, users who engaged in formal training environments (such as the GeM LMS or departmental programs) reported significantly higher satisfaction in the privacy dimension. This underscores the role of structured training in enhancing user confidence in the platform's security features. Together, these insights highlight the complementary value of both formal and informal learning modes, suggesting that a blended approach may be most effective in strengthening user experience and satisfaction on the GeM portal. From a policy perspective, investing in accessible formal training modules while simultaneously encouraging peer-learning communities could enhance the overall e-service quality experience for users.

V. Conclusions & Implications

The present study offers several important contributions to the literature on e-service quality in public procurement, specifically in the context of the Government e-Marketplace (GeM). By focusing on fourteen distinct first-order dimensions of e-service quality, the study provides a nuanced understanding of user experiences. It moves beyond traditional models by capturing sector-specific expectations and concerns relevant to government buyers. The descriptive results reinforce earlier findings (e.g., Parasuraman et al., 2005; Zeithaml

et al., 2002) on the importance of delivery-related dimensions—such as accuracy, timeliness, and condition of goods—in shaping user perceptions. However, the relatively low scores for dimensions like *Training Availability* and *Information Availability* underline persistent challenges in digital enablement and transparency within public e-procurement, echoing concerns raised in more recent studies (Dwivedi et al., 2022; Kumar et al., 2023). Moreover, by presenting user satisfaction as a separate evaluative outcome rather than a part of the e-service quality construct, the study aligns with theoretical perspectives that view satisfaction as a consequence of perceived service quality (Oliver, 1997), thereby enhancing the construct validity of the framework employed.

The low mean score for *Training Availability* indicates a pressing need to redesign or reinforce the learning modules provided via the GeM Learning Management System (LMS). Platform administrators should consider hybrid learning approaches that integrate formal instruction with peer-to-peer support and mentoring (Sharma et al., 2021). Similarly, addressing the shortcomings in *Information Availability* and *Price Offerings* could significantly enhance user trust and decision-making confidence. This includes providing real-time updates, detailed product specifications, and transparent pricing structures (Bai et al., 2021). High scores in delivery-related dimensions reflect strong operational efficiency. Continued investment in logistics infrastructure and vendor coordination is essential to sustain and further enhance these outcomes (Zhu et al., 2023). Moderate scores for *Incident Mechanism*, *User Support*, and *Platform Design* suggest areas for incremental platform enhancement. Implementing AI-driven chatbots, streamlining navigation, and enabling real-time incident tracking could improve responsiveness and user satisfaction (Ahmad et al., 2017; Wolfinbarger & Gilly, 2003). Furthermore, the observed differences across *Experience* and *Mode of Learning* groups point to the value of targeted training and communication strategies. New users and those trained informally may benefit from tailored onboarding initiatives (Dwivedi et al., 2022). Although not a part of the e-service quality construct, *Overall Satisfaction* (Mean = 3.81) serves as a valuable barometer of user experience. Its inclusion provides insight into general perceptions of the platform and highlights the need for continuous improvement across all service dimensions. By acting on these recommendations, the Government e-Marketplace can further enhance the overall user experience, thereby fostering greater adoption and satisfaction among public procurement professionals.

VI. Limitations And Future Research Directions

While the study is based on responses from 250 government buyers on GeM, the findings may not fully capture the perspectives of all stakeholder groups, such as sellers or policy administrators. Future research should consider incorporating multiple user groups for a more holistic view of e-service quality in public e-procurement.

The study uses a cross-sectional design, which captures user perceptions at a single point in time. Longitudinal studies could help examine how user perceptions and satisfaction evolve over time, especially in response to platform upgrades or policy changes. This paper primarily explores descriptive statistics of e-service quality dimensions. Although it presents overall satisfaction as an outcome variable, structural relationships (e.g., mediation or moderation) were not evaluated. Future work could employ structural modeling to assess causal pathways and test the robustness of the e-service quality framework. Given that the findings are derived from the Indian Government e-Marketplace, generalizing the results to other public procurement platforms globally should be done with caution. Comparative studies across different national contexts or platforms would be valuable to assess the universality of the findings. Although Training Availability emerged as a critical gap, the study does not delve into the qualitative aspects of training content, delivery, or user engagement. Future research could combine quantitative analysis with qualitative methods (e.g., interviews or focus groups) to explore training-related challenges in greater depth.

Acknowledgements

The authors gratefully acknowledge the financial support provided by the Indian Council of Social Science Research (ICSSR), New Delhi, under the **Grant No. ICSSR/RPD/MN/2023-24/G/3.** This support was instrumental in facilitating the fieldwork and analysis presented in this study.

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