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THE ANALYTICAL STUDY ON MICRO, SMALL, AND MEDIUM-SIZED (MSME) BUSINESSES USING E-PROCUREMENT

K B Sudarshan
Research Scholar
Dr Atul Loomba
Guide name
Rabindranath Tagore University

Abstract

From the procure-to-pay (P2P) cycle to supply chain management to strategic and financial planning, e-procurement software provides visibility and control over all procurement operations. Software as a Service, or SaaS, solutions are used by many of the most prominent E-Procurement platforms. They offer a centralised, cloud-based software platform that links stakeholders, applications, and physical sites for improved communication, collaboration, and efficiency. While software automation used to be the domain of larger corporations, E-Procurement software is now used by both small and large corporations. While every firm is different, E-Procurement is typically deployed as part of a wider business process management strategy. This study provides a methodology to investigate the relationship between e-procurement and three enabling elements in more detail (top management support, IT obstacles and strategic purchasing). Because top management often owns the company and is more actively involved in investment choices, top management support is often crucial in MSMEs. Non-response bias and common-method bias are two of the most prominent potential risks to survey research. We compared company size by number of workers and operational income in the population with the participating sample to determine non-response bias. In both of these areas, the results of the analyses of variance (ANOVA) revealed that there were no significant differences between the sample and the population. We used Harman's single-factor test to check if a single factor could explain the majority of the variance. We can say that e-procurement has garnered a lot of attention in the literature; it hasn't been studied in depth in the context of MSMEs. The purpose of this study was to address a gap in the literature by empirically testing a model for the growth of e-procurement in MSMEs, which comprised top management support for IT, IT obstructions, and strategic purchasing. Furthermore, the concept links e-procurement to both procurement and company success.

Keywords: E-Procurement, MSME, firm, India, etc

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1. INTRODUCTION

- **The Basics of E-Procurement**

From the procure-to-pay (P2P) cycle to supply chain management to strategic and financial planning, e-procurement software provides visibility and control over all procurement operations. Software as a Service, or SaaS, solutions are used by many of the most prominent E-Procurement platforms. They offer a centralised, cloud-based software platform that links stakeholders, applications, and physical sites for improved communication, collaboration, and efficiency. While software automation used to be the domain of larger corporations, E-Procurement software is now used by both small and large corporations. While every firm is different, E-Procurement is typically deployed as part of a wider business process management strategy. Cost reductions, efficiency gains, and improved strategic and competitive decision-making are among the broad objectives, which are aided in part by the use of E-Procurement to:

- Automate and streamline business operations.
- Improve the transparency and accessibility of all spends data.
- Using centralised data management, you can improve collaboration, analysis, and decision-making.
- Cut down on waste, inefficiencies, erroneous spending, and human error.
- Create a cohesive software environment based on shared efficiency by connecting all applications, including existing enterprise resource planning (ERP), accounting, and customer resource management (CRM) systems.
- Using strategic sourcing, build and manage a global supply chain with optimal performance and strong vendor relationships.
- Redefine procurement's role as a source of value and cost savings through actionable insights and process improvement.

Goals will vary each organisation, but in general, moving to E-Procurement is considered as a net gain, albeit one that comes with some problems those businesses may not be prepared to face without good planning.

1.1 E-Procurement Advantages and Perceived Disadvantages

Cloud-based E-Procurement systems, which include dedicated purchasing systems (e-Purchasing), supply chain management, and other e-Commerce tools, are a force to be reckoned with by any business serious about embracing digital transformation, with experts predicting a market worth nearly $10 billion by 2023. Businesses in all sectors and industries rely on procurement to function, whether they are business-to-business or consumer-facing. To be sure, making procurement as cost-effective and efficient as possible is a reasonable goal. However, achieving that aim is not a one-size-fits-all scenario. While it's vital to recognise the universal benefits of E-Procurement, it's also critical to recognise the

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bottlenecks and challenges that establishing such a system might bring—and to plot a route to avoid or overcome them.

- **E-Benefits: Procurement's**

Businesses of any size, industry, or age that seek to streamline and optimise their procurement operation will discover significant benefits in E-Procurement software's extensive features. Companies can achieve the following with e-procurement:

  - Improved process efficiency and control. Artificial intelligence and machine learning are effective process automation tools that can be used to:
  - Create access to shared data that is leveled and role-appropriate.
  - Create touch less workflows for all of your important processes (complete with routing contingencies for approvals)
  - Create vendor catalogues that are linked to contract management so that every order for goods and services is placed with the best vendor, at the best price, with the greatest terms and incentives all while minimizing the risk of maverick spending or invoicing fraud.
  - Integrate procurement with your existing software to obtain even more efficiency.
  - Communication and organisation have improved. Everyone is on the same page with centralised, cloud-based data management, whether they're in the office or working on their tablet, laptop, or smartphone thousands of miles away. Automation and integration eliminate bottlenecks, obstacles, and needless human mistake, resulting in increased overall efficiency while lowering costs and waste.

It's also easy to apply crucial data analytics tools to extract actionable insights and valuable projections based on complete, reliable data with centralised and comprehensive data storage.

- **Significant cost savings:** Through both initial and ongoing efficiency improvements, process optimization produces immediate and long-term savings. Your employees can devote less time and resources to low-value tasks and more to high-value ones. You may save even more money by lowering your overhead, hiring fewer people, and investing less in technology, software, and even office supplies (automated, digital processes use far less paper and materials than traditional, manual workflows). E-Procurement software is not only fast, powerful, and has a tiny IT footprint; it also saves your firm money through process improvements. Investing in a bespoke, purpose-built procurement software solution can help you create a really cost-effective solution. Planergy, for example, specialises in procurement software solutions that include all of the capabilities your company requires without adding extra bloat—all while allowing for future growth and expansion in a fluid, non-disruptive manner.

- **E-Disadvantages: Procurement's**

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E-Procurement can be difficult to categorize as having actual "disadvantages." A better word would be "challenges," because the issues that arise when installing E-Procurement software fall into one of two categories:

- Culture Shock, which refers to challenges in acquiring both physical and metaphorical investment in digital transformation as a result of a lack of information, perceived software constraints, or a business culture unable to move beyond traditional procurement processing patterns.

- Situation-Specific Integration Issues, which are frequently caused by a lack of preparation, a lack of or insufficient grasp of the goals being addressed through implementation, or a lack of awareness of the capabilities and functions of the chosen E-Procurement software.

Both types of challenges can be avoided by implementing the following strategies:

a. **Planning and research:** Any significant upgrade to a company's workflows should begin with a needs analysis. The second step is to look into the available features, scalability, and total cost of the solutions that are being explored to meet these needs. In order to keep expenses low, research and preparation are very vital. It's possible that your company doesn't require a full-fledged E-Procurement solution at this time; small firms may discover that a purchase order tool or e-Purchasing software will enough for the time being. Understanding your true needs will save you from overspending now while also allowing for future expansion. Knowing what you need and how much you're ready and able to spend will help keep costs, chaos, and irritability to a minimum.

b. **Training and education:** It's vital to acquire buy-in from all stakeholders, from the C-suite through management to office personnel and contractors, before implementing any solution. Choosing a service provider like planergy, which includes comprehensive education and training as part of its E-Procurement software (including training, information sessions, and refreshers before, during, and after installation), will help you avoid typical pitfalls like:

- ✓ User dissatisfaction leads to poor performance and compliance.
- ✓ Issues with supplier integration (e.g., catalogue integration and updates).
- ✓ Difficulties combining direct and indirect spending into a unified system.
- ✓ Managerial problems with data analytics, process optimization, and other data dashboards result in a lack of strategic value.

1.2 Policy on public procurement for small and medium-sized businesses in emerging countries India

In many countries, public procurement accounts for a large amount of GDP and serves as a key tool for governments to achieve a variety of social and economic policy goals. Promoting small and medium businesses (SMEs) is one such goal that has gotten a lot of legislative and academic attention over the

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years. The economic case for assisting SMEs in government procurement is compelling. Small and medium-sized businesses (SMEs) are critical for robust local economies that may employ more people and provide opportunity for citizens to develop. Increased SME procurement market access could increase competitiveness and, in particular, variety, hence improving the possibility for economy-wide innovation. As a result, assisting SMEs can assist governments in seeking impacts on competition, innovation, and inclusive growth. Small businesses are not only the largest contributors to overall employment and job creation for individuals outside the primary agriculture sector, but they are also a substantial source of domestic and export revenues, particularly in developing and recently industrialised nations. Although the overall impact on lowering income inequality and poverty reduction is unclear, a strong and competitive SME sector may clearly incorporate massive informal activities and marginalised populations into formal value-added market activities. Facilitating SME participation in public procurement is so commonly recommended in countries around the world for achieving developmental policy goals.

However, according to a variety of official figures, SMEs continue to be underrepresented in the aggregate value of procurement contracts given by government agencies. This is mostly due to a variety of procedural, bureaucratic, and market environment constraints that SMEs face while attempting to access procurement markets. To overcome these obstacles, governments have implemented a slew of policies aimed at lowering barriers for SMEs and increasing their participation of public-sector contracts. Such policies call for a variety of organisational, behavioural, and structural changes, as well as affirmative action schemes including quotas, set-asides, and price preferences, all of which are aimed at increasing the likelihood of SMEs winning public sector contracts. Although such policies are well-justified in terms of the benefits they provide to small firms, another factor to consider is how well they are implemented by government agencies. In many industrialised and developing countries, the existing literature has essentially established conformity performance tension in several public procurement objectives. As a result of these contradictions, the implementation of SME support/promotion programmes in public procurement is said to be problematic. The information in this field comes primarily from industrialised countries, and it demonstrates a poor outcome for SME-oriented procurement policies, which is often attributed to particular organisational issues. This raises important questions about how to replicate similar policies in underdeveloped nations, where the policy environment is also hampered by a lack of organisational and administrative competence. In comparison to industrialised countries, developing countries' public policies provide a surprisingly low amount of help to enterprises. While the appeal of SME support policies for governments in developing countries cannot be emphasised, putting such policies into practise in public procurement may prove difficult. However, little is known about how such programmes are implemented in developing nations. To broaden the scope of the SME-oriented procurement framework, it is necessary to reassess not just the organizational/implementation assumptions that underpin such policies, but also the data from developing countries.

- **Small and medium-sized enterprises (SMEs) and government procurement policies:**

A large number of studies have been conducted over the years to examine the difficulties that SMEs face in gaining entry to the public procurement market. Such impediments can be found at every level of the procurement process, from meeting pre-tender procedural requirements to competing against huge enterprises with disproportionate advantages, and finally the challenges of meeting post-

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contractual commitments. In the policy literature on supporting SMEs in public procurement, the barriers to entrance and award conditions are notably stressed. Higher financial costs of bidding, lack of knowledge in creating proper bids, low awareness of opportunities in the public sector, onerous tender documentation, time-consuming bureaucratic procedures, and size-related constraints are all disadvantageous to SMEs in comparison to larger enterprises, which can absorb these costs more easily due to economies of scale and technical know-how. Risk-averse tendencies among public procurement officials, who favour large and stable enterprises over newer and weaker SMEs, add to these challenges. As a result, many SMEs find themselves competing with giant corporations at the bottom of the ladder. Governments in numerous countries have established particular legislative efforts to eliminate such impediments and encourage SMEs to participate in public procurement.

The public sector environment, the public sector procurement process, and the small company sector are all covered in this comprehensive overview of numerous SME-oriented assistance policies in public procurement. These policies include both generic and barrier-specific schemes, which frequently overlap with industry affirmative action programmes like set-asides, quotas, and bid reductions, among other things. Regardless of the socio-economic arguments offered for them in the economic policy literature, SME-oriented procurement strategies are assessed in this part based on experiences in various countries. According to an OECD survey conducted in 2012, one-third of member countries have established particular legislative provisions or policies to encourage SMEs to participate in public procurement. For example, Australia, Canada, Malaysia, the United Kingdom, the United States of America, and South Africa have all widely implemented preferred policies for SMEs in public procurement at various levels of government. The programme of set-asides for small enterprises was launched in the United States in 1978. Several acquisition-related changes were implemented by the US administration at the same time, particularly in the 1990s, resulting in a higher share of contracts being awarded to small enterprises. The Small Business Reauthorization Act of 1997 increased the percentage of government prime contracts awarded to small businesses from 20% to 23%. While the reforms resulted in a significant increase in contracts for small businesses in terms of dollar value, uneven implementation among federal agencies has resulted in a failure to meet procurement targets for women, minorities, and veterans.

As a result, several organisational and institutional measures have been implemented, including providing procurement workforce training and skill enhancement, addressing human intervention in contract awards, ensuring full compliance with subcontracting laws by prime contractors, promoting manufacturing-related small businesses, and re-evaluating the definition of small businesses in order to increase their proportion of federal procurement. The EU approach, on the other hand, rules out set-asides and adheres to SME-friendly institutional norms that aim to overcome the challenges that small enterprises face in public procurement. Contract simplification procedures include the division of major contracts into lots, the reduction of public procurement administrative costs, the development of information channels, and training programmes by allowing SMEs to win contracts. Despite the fact that the EU method has been largely praised for being non-discriminatory, various analysts have demonstrated that its implementation has been far from ideal. The poor execution is mostly due to organisational problems such as a lack of explicit policy focus on SMEs, as well as administrative challenges coming from the division of bigger contracts into smaller ones, a lack of time and human resources, and a general fear of risk.

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- **In India, SMEs and public procurement:**

In 2012, the Indian government established a preferential public procurement strategy, similar to that of many other nations, with the goal of leveraging massive procurement spending for the advantage of small enterprises. The small business sector in India is a thriving and active part of the country's economy. The sector, which is divided into three distinct groups of micro, small, and medium companies (MSMEs), accounts for more than 80% of the country's overall industrial enterprises and is a major source of employment generation. SMEs account for over 35% of exports, 40% of overall industrial production, and at least 12% of GDP, and employ approximately 60 million skilled and unskilled individuals across more than 26 million businesses. According to the Fourth All India Census of MSMEs, which was conducted in 2006-2007, the sector's size was evaluated for the first time using data from numerous sources, and the total number of working firms in the sector was calculated to be 361.76 lakhs (36.176 million).

Since 2006-2007, the number of MSEs has increased substantially, and there are now around 46 million MSEs across numerous industries employing approximately 106 million people. Despite the magnitude of the industry and its relevance, SMEs have traditionally had a low share of public sector contracts in India. It was believed to account for only 4% to 5% of the whole government procurement market, which is expected to account for up to 30% of the country's GDP and 15% of the central government budget. The low proportion was attributed to a variety of challenges that SMEs confront as a result of onerous tender procedures, such as required eligibility conditions requiring a minimum turnover limit and a number of purchase orders issued previously for material procurement. Furthermore, the Indian public procurement system is commonly believed to have a variety of structural flaws, including a lack of legal and regulatory control, transparency, accountability, and standards, all of which impede small enterprises' access to public sector markets. To address some of these issues, the Indian government issued a revised public procurement policy for micro, small, and medium enterprises (PPPMSE) on April 1, 2012, with the goal of improving the policy regime and giving SMEs a fair part of the procurement market. Starting on April 1, 2012, the policy required every Central Ministry, Department, and Public Sector Enterprise (CPSE) under the union government to achieve an overall procurement goal of at least 20% of total annual purchases of products or services produced or rendered by SMEs over a three-year period.

CPSEs, along with central ministries and departments, account for roughly 80-85 percent of total procurement, and are seen as important for promoting small enterprises. The policy was given a three-year "preparatory phase" during which affected ministries, departments, and CPSEs were required to set an annual procurement goal of at least 20% procurement from SMEs. A sub-goal of 4% (i.e. 20% of the 20% target) was also set for SMEs owned by scheduled caste/scheduled tribe entrepreneurs from impoverished areas of Indian society. In a situation where the L1 price comes from someone other than a SME to supply a portion (20%) of the requirement by bringing down its pricing to the L1 price, the policy gives precedence to those SMEs quoting prices within a price band of L1+15 percent. The supply will be shared equitably if there are multiple such SMEs. The overall yearly procurement goal of at least 20% from SMEs became mandatory at the completion of the three-year enabling period, on April 1, 2015. Finally, the policy required procuring bodies to report SME procurement against the ministry's 20% target on an annual basis in order to assess the program's overall effectiveness.

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2. LITERATURE REVIEW

Sree, Ch & Vasavi, P. (2020) India's Micro, Small, and Medium Enterprises (MSME) are a key driver of the country's economic growth. These MSMEs not only create employment possibilities, but also aid in the process of industrialization in rural areas, hence reducing income disparities among locals. MSMEs make a substantial contribution to the development of the Indian economy through export output, domestic production, minimal investment requirements, operational flexibility, technology-oriented firms, and so on. Small business is the second largest employer of human resources in India, behind agriculture. MSMEs account for more than 80% of all industrial enterprises and are responsible for 40% of industrial output, 80% of industrial employment, 45 percent of manufacturing value added, and 40% of total exports. In this article, an attempt is made to comprehend the growth and contribution of Micro, Small, and Medium Enterprises (MSMEs) in India, as well as the significance of MSMEs in creating jobs in India. The different issues that these MSMEs confront in carrying out their activities are also covered in this study.

Prakashkumar Patel (2017) Electronic commerce and electronic procurement are fast gaining popularity around the world. Internet-based business allows for significant cost savings, increased efficiency, and increased productivity. When it comes to embracing E-Business, India has significant historic and cultural impediments. This is primarily due to the old business mentality, which is heavily reliant on personal trust, past credit, and established company methods. Electronic data transmissions are used to assist Operational, Tactical, and Strategic Procurement. E-Procurement is now widely used as a strategic tool by numerous businesses to compete with one another. The purpose of this study stems from the fact that many organisations still rely on traditional procurement methods, and literature on e-procurement practises in India is inadequate. As a result, the goal of this study is to look into the E-Procurement processes of a few industrial manufacturing companies in Gujarat. The manufacturing industry has a higher proclivity for adopting technology like E-Procurement. Researchers may utilise exploratory, descriptive, or causal research designs in general. This study is predicated on the fact that the technology involved is new. A small amount of study has been found in the literature with regard to India. In order to explore various E-Procurement methods within a sample of manufacturing enterprises that used E-Procurement, the descriptive research used a quantitative technique and a questionnaire instrument. Data was gathered from 72 manufacturing industrial units across Gujarat, including the states of South, North, Central, and Saurashtra. Non-probability Convenience Sampling was used to acquire data. An Executive and Managers associated with an organization's E-Procurement activities make up the sampling unit. Descriptive and inferential statistics were utilised by the researcher. Frequency Distributions and Cross Tabulation were employed in the present research study for Descriptive Analysis, while Exploratory Factor Analysis, Kruskal Wallis, and Chi-square Analysis were used for Inferential Analysis. The relationship between E-Procurement practises and industry categories, company size (which is further defined based on investment in plant machinery and number of people), and company ownership was investigated using the Kruskal Wallis Test and Chi-square Analysis. Acceptance and rejection of hypotheses were done at a 95 percent confidence interval throughout the analysis. The study discovered considerable differences in procurement patterns by industry, firm size, and firm ownership. It also discussed the challenges of implementing E-Procurement, procurement objectives, reasons for implementing E-Procurement, Information Technology (IT) tools used and preferred for Procurement, Information Technology (IT) solution used for operative order processing, Number of suppliers with whom business documents were exchanged

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via EDI/Web EDI, Methods used to exchange electronic business documents with suppliers, and the extent of inefficiency.

Manoj Kumar (2017) the emergence of the Internet as a business systems platform has sparked significant changes in the way organisations acquire goods and services. Early e-procurement literature predicted considerable reductions in procurement costs, improved purchasing function status, and changes in supply market structure. Our research aims to assess the accuracy of these predictions by developing a structural model of the 'e-procurement effect.' This model is designed to define the dynamics of an organization's e-procurement process and to serve as a framework for future study on the transformational impact of e-procurement deployment. An eighteen-month study of e-procurement deployment across nine Indian public sector companies resulted in the evaluation of e-procurement implementation and operation in this chapter. The chapter delves into five major e-procurement themes: system specification, implementation management, changes in organisational characteristics, overall acquisition costs, and governance structures. Our findings imply that the proposed structural model of the e-procurement impact is broadly relevant, and that many of the previously stated benefits can be realised. We also believe that addressing the internal service quality attributes of e-procurement processes is an important variable for the success of e-procurement adoption, a topic with a lot of room for future research.

Dhrubajyoti Choudhury and Mridul Dutta (2016) this study examines and contrasts the many elements that influence industries' offline and online buying behaviour in the B2B sector in India. Institutional purchasers often engage in lengthy, careful decision-making procedures that include a number of consecutive stages. A poll was conducted by a Gurgaon-based business that provides procurement solutions to several industries. The findings reveal that the procurement channel used is dependent on the type and importance of the purchase being made. Other key elements and dependencies of procurement channels, such as total cost of ownership, efficiency, and the link transitioning from traditional procurement to e-procurement, were also highlighted in the study.

3. OBJECTIVES

- To study policy on public procurement for small and medium-sized businesses in emerging countries India.
- To analyze Micro, small, and medium-sized businesses use e-procurement.

4. RESEARCH METHODOLOGY

4.1 Research technique

- **Data collection:**

MSMEs are defined in this study as businesses with 500 or more employees but less than 50. We excluded enterprises with fewer than 50 employees since they are less likely to use e-procurement extensively. As a result, the study's population consisted of manufacturing MSMEs (50 to >500 people) that had been in business for at least four years.

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This study used a modified version of Dillman's (1978) total design method to collect data from a convenience sample of 100 enterprises through telephone survey. The companies that made up this sample were chosen at random and then contacted by phone. The surveys were conducted over the phone with no reminders. The data gathering phase lasted around one month and was ended when the total number of completed surveys reached 100.

Non-response bias and common-method bias are two of the most prominent potential risks to survey research. We compared company size by number of workers and operational income in the population with the participating sample to determine non-response bias. In both of these areas, the results of the analyses of variance (ANOVA) revealed that there were no significant differences between the sample and the population. We used Harman's single-factor test to check if a single factor could explain the majority of the variance.

4.2 Validation and measurement of constructs

- ✓ **Scale reliability:** Cronbach's alpha was used to calculate scale reliability, which is a measure of the internal consistency and homogeneity of the components that make up a scale. Cronbach's dependability estimations ranged from α= 0.85 (strategic purchasing) to α= 0.96 (research and development) (IT obstructions). The composite reliability scores for all six measures were above than the 0.71 suggested limits, indicating that the scales we utilised were reliable for this population.

- ✓ **Correlations between items, scales:** For each group of items inside each of the six scales, the inter-item and inter-scale correlations were determined. The average inter-item correlations for the six scales range from $\bar{r}$ = 0.67 (procurement process performance) to $\bar{r}$ = 0.84 (procurement process performance), as shown in Table 1 top management support). Within their corresponding scales, all inter-items for each scale were substantially correlated ($p<0.01$) and above the recommended value of r = 0.3, showing a strong inter-item association among the measuring variables for each of the six constructs.

Fixing (i.e. constraining) the correlation between pairs of constructs to 1.0, then re-estimating the updated model, one can examine discriminant validity among the latent variables and their associated measurement variables. A two-construct model is effectively converted to a single-construct model using this approach. If the difference in the two statistics between the constrained and standard models is considerable, discriminant validity is met (1 df). The $\chi 2$ results of the two difference tests $\chi 2$ (see Table 4) were all significant, indicating that discriminant validity existed between all six construct pairs.

When a group of alternative measurements accurately depicts the construct of interest, it is said to have convergent validity. If all of the individual factor loadings are substantial, the indicators are effectively converging to measure the same construct, assuming model fit. This was determined by examining the model fit of the level of significance for each of the factor loadings using a CFA of the six constructs.

5. RESULT AND DISCUSSION

Table 1 shows the means and standard deviations. Individual responses revealed that virtually all respondents agreed with the claims (item scores above the scale median score of 3.00), indicating that

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the companies in the sample used the techniques described in Table 1 to a significant extent. Medium-sized enterprises appear to utilise e-procurement mostly to support purchasing transactions (generating purchase orders and tracking supplier payments) and to a lesser extent for supplier collaboration. These findings are similar to those of prior studies, which indicated low levels of e-procurement in MSMEs.

Table 1 Measurement loadings, average inter-item scale correlations, and construct reliability estimates

Code	**Item**	**M**	**Std. Devt.**	**Confirmatory factor analysis Std loads**
Top management support to IT (Reliability α = 0.86, $\bar{r}$ = 0.85, AVE = 0.83)				
tms_1		3.45	0.771	0.85
tms_2		3.48	0.833	0.81
tms_3		3.58	0.811	0.84
IT obstructions (Reliability α = 0.96, $\bar{r}$ = 0.76, AVE = 0.70)				
ito_1		1.15	0.525	0.87
ito_2		1.15	0.464	0.83
ito_3		1.16	0.481	0.84
ito_4		1.16	0.492	0.88
ito_5		1.17	0.491	0.78
ito_6		1.21	0.537	0.87
ito_7		1.16	0.491	0.90
ito_8		1.14	0.442	0.93
ito_9		1.16	0.471	0.88
ito_10		1.18	0.492	0.91
Strategic purchasing (Reliability α = 0.85, $\bar{r}$ = 0.61, AVE = 0.71)				
SP_1		3.51	0.744	0.68

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SP_2		2.88	0.836	0.53
SP_3		3.26	0.741	0.65
SP_4		3.27	0.711	0.98
Electronic-procurement (Reliability α = 0.93, $\bar{r}$= 0.74, AVE.74)				
EP_1		3.05	1.035	0.70
EP_2		2.81	1.071	0.81
EP_3		2.68	0.938	0.92
EP_4		2.64	0.961	0.94
EP_5		2.58	0.876	0.92
Procurement procedure performance (Reliability α = 0.92, $\bar{r}$= 0.67, AVE = 0.74)				
PPP_1		3.41	0.664	0.90
PPP_2		3.36	0.667	0.91
PPP_3		3.41	0.691	0.84
PPP_4		3.32	0.643	0.91
PPP_5		3.31	0.632	0.85
PPP_6		3.42	0.630	0.67
PPP_7		3.57	0.660	0.67
Business presentation (Reliability α = 0.93, $\bar{r}$ = 0.80, AVE = 0.72)				
BP_1		3.91	0.585	0.88
BP_2		3.93	0.523	0.78
BP_3		3.87	0.545	0.91
BP_4		3.86	0.551	0.94

Note: The average inter-item correlation among scale items is denoted by the letter r. The coefficients were all statistically significant p<0.01

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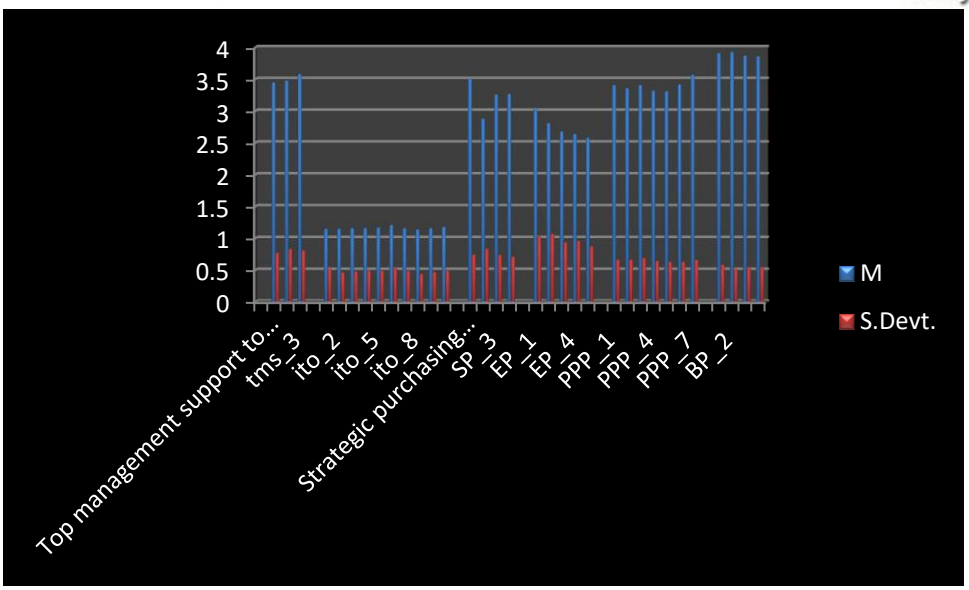

Figure 1: Measurement loadings, average inter-item scale correlations, and construct reliability estimates

The results indicated that purchasing software applications were the most generally utilised among the e-procurement software programmes employed by the organisations in the sample (Table 2), followed by ERP software and supply chain management software. Other applications, such as corporate purchasing portals, extranets, e-auctions, e-marketplaces, digital dashboards, and data mining, were only lightly adopted and used by the organisations in the sample.

Table 2 E-procurement instruments

	M	**Std devt.**
Purchasing management software	4.23	0.86
Enterprise resource planning software by purchasing management unit (SAP, Oracle, JDEdwards)	3.80	0.91
Supply chain management (SCM) software	2.51	1.32
Corporate intranet portal for purchases	1.18	0.66
Extranet for suppliers	1.05	0.36
E-sales	1.02	0.26
E-marketplaces	1.03	0.28

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software of Data mining	1.07	0.41
Digital dashboards	1.07	0.47

The SEM x-measurement (CFA) model and the pairs of constructs and their associated measurement variables were used to calculate the inter-scale correlations (see Table 3). The inter-scale correlations were significant ($p<0.01$), with r values ranging from 0.0 (non-significant) to 0.57 (significant).

The fit indices for the CFA suggested a fair fit (The χ^2 /df= 1.51, RMSEA = 0.050, CFI = 0.97, IFI = 0.97, NNFI= 0.97, RFI= 0.94), with values above or equal to the acceptable minimum thresholds (χ^2/df3.0, RMSEA<0.07, CFI>0.91, IFI>0.91, NNFI>0.91, RFI>0.91), despite the fact that the CFA model' The indicators' standardised loadings ranged from lx= 0.59 to lx= 0.98, and they were all highly significant (t>2.575; p<0.01). The AVE for each of the constructs presented in Table 1 was larger than 0.6, indicating that the constructs' measurement items share a significant amount of commonality and that the construct explains more than 50% of the variance in the measurement variables. Because the loadings of the measurement items on their related constructs are all significant, the construct (AVE) accounts for the bulk of the measurement variable variation, and there is a high level of inter-item correlation, each construct is assumed to have convergent validity.

Table 3 Correlations of Inter-scale

	Electronic-procurement	**Procurement procedure performance**	**Business presentation**	**Top management sustain**	**IT obstructions**	**Strategic purchasing**
EP	1					
PPP	0.46	1				
BP	0.34	0.21	1			
TMS	0.50	0.45	0.43	1		
IT	−0.22	−0.06(NS)	−0.38	−0.32	1	
SP	0.43	0.40	0.36	0.57	−0.12 (NS)	1

All correlations significant p<0.05 apart from for those labeled NS: (not significant)

Table 4 Discriminant validity

	χ2 statistic

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	Unconstrained model (df)	**Constrained model (df)**	**dissimilarity**	**p-assessment**
Electronic-procurement by				
Procurement procedure performance	124.22	1,389.73	1,265.50	0.000
Business presentation	42.98	500.31	457.32	0.000
Top management support	37.88	263.91	226.00	0.000
IT obstructions	146.34	660.26	513.91	0.000
Strategic purchasing	59.90	376.06	316.15	0.000
Procurement procedure performance by				
Business presentation	83.04	583.81	500.74	0.000
Top management support	64.78	247.06	182.27	0.000
IT obstructions	181.22	854.58	673.35	0.000
Strategic purchasing	89.20	351.73	262.52	0.000
Business presentation by				
Top management support	30.08	191.30	161.21	0.000
IT obstructions	125.34	347.42	222.07	0.000
Strategic purchasing	40.45	399.03	358.57	0.000
Top management support by				
IT obstructions	111.47	186.38	74.90	0.000
Strategic purchasing	35.47	117.78	82.30	0.000
IT obstructions by				
Strategic purchasing	125.91	266.13	140.21	0.000

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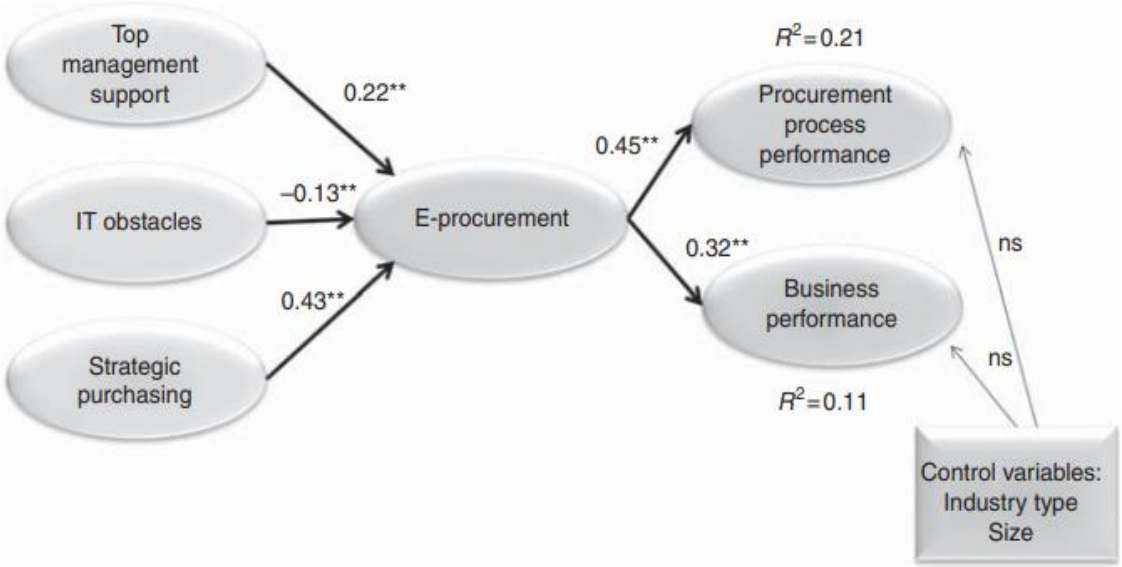

Figure 2: Structure model estimation

Ns: non-significant. **p<0.01

Overall, the data analysis appears to validate the proposed model, implying that IT support from top management, strategic purchasing, and IT hurdles are three significant factors influencing the development of e-procurement. The favourable association between strategic purchasing and e-procurement provides reassurance to MSMEs' managers that e-procurement development is aided by the purchasing function's strategic importance. MSMEs that do not have a strategic purchasing function but want to grow e-procurement should be aware that they are missing out on one of the most important e-procurement enablers.

6. CONCLUSION

We can say that e-procurement has garnered a lot of attention in the literature; it hasn't been studied in depth in the context of MSMEs. The purpose of this study was to address a gap in the literature by empirically testing a model for the growth of e-procurement in MSMEs, which comprised top management support for IT, IT obstructions, and strategic purchasing. Furthermore, the concept links e-procurement to both procurement and company success. This study provides a methodology to investigate the relationship between e-procurement and three enabling elements in more detail (top management support, IT obstacles and strategic purchasing). Because top management often owns the company and is more actively involved in investment choices, top management support is often crucial in MSMEs. Top management support for IT, IT obstacles, and strategic purchasing are all relevant elements when MSMEs embrace e-procurement, according to the findings of this article's five study questions. The findings also led us to believe that strategic purchasing plays an important role in the growth of e-procurement in MSMEs. Furthermore, this study found that e-procurement has a positive impact on procurement and business performance, and it can be concluded that the performance gains derived from e-procurement go beyond immediate improvements in procurement process performance

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to also increase a firm's business performance, adding significant value to the procurement function of MSMEs.

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