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The role of supplier relationships and regulatory barriers in E-procurement adoption in Indian tea factories

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Abstract
Implementation of e-procurement technologies at Indian tea factories would bring increased transparency to relationships with suppliers, reduce prices, and improve efficiency in the procurement process. The execution is however influenced by the very crucial elements of cost perceptions, technology preparedness, and cooperation of the suppliers. In this research study, the authors examine the significant factors so that the adoption barriers and enablers of e-procurement are established. The results reveal that 67.2% of respondents feel that supplier collaboration is well integrated into digital procurement systems, pointing to the role of solid and trustworthy supplier relationships in driving adoption. A positive outlook for digital transformation is also provided by the fact that 68.3% of respondents indicated that they are ready to adopt e-procurement technologies, despite resistance and infrastructure constraints. This assumes that 61.7% of respondents confirm that e-procurement is a cost-effective alternative further supports its integration in the procurement process and lessening financial pressures. The fact that a large percentage of respondents are neutral or skeptics, however, indicates that they are questioning the financial impact of e-procurement, the complexity of regulatory compliance, and digital capabilities of suppliers. For digital procurement to be effective in the Indian tea business, these issues will have to be addressed through some strategic interventions of supplier training, regulatory uniformity, and even cost-benefit awareness campaigns.

Keywords: E-Procurement Systems, Indian Tea Factories, Enhance Procurement Efficiency, Reduce Costs, Improve Transparency, Supplier Relationships, Supplier Collaboration, Technology Readiness, Cost Perceptions

Introduction

Around the world, businesses are very much interested in adopting e-procurement systems for the enhancement of overall efficiency, saving operating costs, and streamlining procurement procedures. Maximizing procurement processes including purchase orders, supplier selection, and payments through a transparent, automated, and paperless substitute for conventional procurement techniques is the role of e-procurement. E-procurement system integration holds huge potential for Indian tea manufacturers, especially when the sector is increasingly under pressure to modernize and conform to international standards. Because of fierce competition, shifting consumer demands, and rising consumer expectations for sustainability and transparency in sourcing, the Indian tea industry—which makes a sizeable contribution to the nation's agricultural economy—must increase operational efficiency. Notwithstanding these advantages of e-procurement, the process is not an easy one when considering adoption within the industry. These two biggest factors in stopping their adoption have proven to be of quality of connections to the supplier and the concern over the legalities surrounding a transaction in any tea factory.

Supplier relationships play a key role in the success of e-procurement adoption, especially in tea production sectors, as factories and suppliers usually have long-term agreements. The nature of these interactions as cooperative or transactional may play a huge role in a factory's readiness to shift from traditional to electronic procurement procedures. For many Indian tea manufacturers, suppliers may not have the required infrastructure or knowledge of e-procurement systems, which can make cooperation and effective integration challenging. Moreover, there are disparities in the preparedness of suppliers to use digital platforms and technologies, which may hinder the adoption process. However, the shift to e-procurement may be easier if factories and their suppliers have sound, trustworthy connections. Significant obstacles are presented by regulatory constraints in addition to supplier dynamics. India has a complicated regulatory environment with different standards for compliance, changing laws, and worries about cybersecurity and data protection. These problems can discourage tea producers from implementing e-procurement systems by creating an environment of uncertainty. It is often challenging to develop an atmosphere that will be favourable for digital procurement because various businesses lack the common e-procurement framework, and the regulations are not always implemented in a uniform manner. Thus, understanding how supplier relationships and regulatory constraints interact together becomes crucial for identifying the predominant bottlenecks hindering the implementation of e-procurement at Indian tea plants. In addition to trying to provide helpful recommendations for overcoming these challenges, this study explores how these two factors impact the extent to which tea producers utilize digital procurement tools. In order to better understand how Indian tea manufacturers can successfully transition to a more efficient, digitally-enabled procurement model, the research will address both the relational and regulatory aspects of the e-procurement adoption process.

Literature review

Demberere, Waithaka, and Matunga (2023) analyzed whether e-procurement procedures contribute to supply chain performance, further detailing how such electronic procurement strengthens cost-effectiveness, efficiency, and transparency of the procurement procedures. According to their analysis, usage of e-procurement improves supplier participation, reduces costs of transactions and streamlines procedure of procurement to achieve better outcomes of supply chains. The study found that an organization's ability to prepare themselves, technology readiness, and preparedness of rules of law represent important determinants of e-procurement adoptions. They also brought up issues that can hinder its successful adoption, such as cyber threats and the aversion to change. Their findings underscore the strategic significance of e-procurement in today's supply chains and call for robust digital infrastructure and legislative support to maximize its benefits.

Oteki (2021) analyzed how Kenyan sugar processing companies fared in supply chains regarding e-supplier management strategies and how digital integration may improve procurement efficiency. According to the study, good e-supplier management improves the efficiency of the supply chain by improving the supplier relationships, reducing the costs of operations, and promoting greater transparency. The results of the study indicate that the use of e-procurement technologies can enhance efficiency and dependability through streamlined source-to-contract processes for sourcing, negotiation, and contract management. These observations apply to India's tea processing sector that shares similar potential and challenges related to e-procurement. Other sectors in their quest for making supply chains better through technological means can benefit greatly from understanding the impact digital management of suppliers has on one's procurement efficiency.

Kumar and Ganguly (2020) [5] investigated how non-monetary performance metrics are used in e-procurement and the effects that various outcomes may have on production costs. For improving procurement performance, their study puts forth the interdependence of the elements including technological incorporation, process efficiency, and supplier coordination. It was thereby able to highlight the improved openness in procurements and efficiency of operation to reduce the cost by showing the relation between them. The results highlighted the strategic adoption of e-procurement and demonstrated that, in addition to immediate cost savings, other factors such as system integration, information sharing, and supplier dependability are important for improving procurement procedures in manufacturing sectors.

Namunane and Muthini (2019) focused on the influence of supplier motivation strategies on procurement performance at Butali Sugar Factories and West Kenya, with a view to the essential role that incentives to suppliers play in enhancing the reliability and efficiency of procurement procedures. Their research has shown how strengthening supplier ties, ensuring timely delivery, and maintaining quality improves procurement performance by means of monetary incentives, long-term contracts, and capacity-building initiatives. The results point out how strategic supplier engagement is critical to the optimization of supply chain operations. This is relevant to the adoption of e-procurement in Indian tea processing factories, where supplier performance and collaboration directly affect technology integration and procurement efficiency.

Research methodology

1. Research Design

This study used a quantitative research methodology to analyze the perceptions of the suppliers regarding the impact of e-procurement on cost, technology readiness, and teamwork. The research method adopted was a descriptive one as it was able to describe the distribution of the responses and was able to draw inferences from the findings as to the dominant factors influencing digital procurement adoption. Survey-based methodology was adopted, and structured questionnaires with a five-point Likert scale measuring the opinions of the respondents in the data collection process.

2. Data Collection

A standardized questionnaire administered to experts and other e-procurement stakeholders was employed for the gathering of primary data. The main questions of the questionnaire were related to supplier cooperation, technological preparedness, and financial impact through e-procurement. In this regard, a combination of both online and offline methods for the collection of data was done in order to ensure a wide representation of sample.

3. Sample Size and Sampling Technique

The study used a total of 180 respondents, who were chosen using purposive sampling so that they were sure to have relevant experience with digital supply chain management and procurement. This sample technique was used for the purpose of getting opinions from those who had the upper hand when it came to procurement decisions.

4. Research Area

This research is conducted in India, and the focus was on companies and organizations that have either embraced or are in the process of embracing the whole agenda concerning e-procurement systems. This study incorporated the views of the respondents from different industries, such as manufacturing, retail, and services.

Data analysis

Table 1 shows the frequency distribution of e-procurement supplier collaboration ratings. The table indicates how the respondents see the supplier cooperation in the electronic procurement systems. The five levels are Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree that divide the table for reply. The distribution helps in finding out the general attitude concerning supplier cooperation in the e-procurement procedure.

Table 1: Distribution of Frequencies for E-Procurement Supplier Cooperation

Supplier Collaboration Rating	Frequency	Percentage (%)
Strongly Disagree (1)	12	6.7%
Disagree (2)	20	11.1%
Neutral (3)	27	15%
Agree (4)	72	40%
Strongly Agree (5)	49	27.2%
Total	180	100%

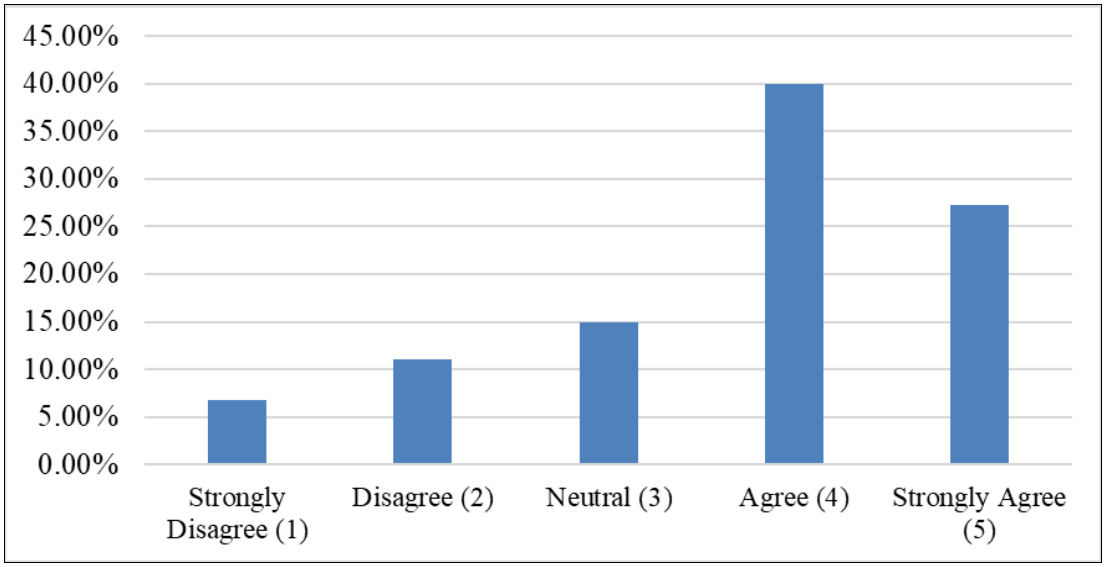

Fig **1:** Graphical representation of Distribution of Frequencies for E-Procurement Supplier Cooperation

According to the results, most of the respondents, at 67.2%, agree or strongly agree that e-procurement systems effectively incorporate supplier collaboration. Although a smaller percentage, at 17.8%, is indicative of disagreement or strong disagreement, a substantial number, at 15%, is neutral. This means that even though e-procurement supplier collaboration is generally viewed positively, there may be scope for improvement to increase participation and accelerate the procurement process.

The frequency distribution of the assessment by the respondents regarding e-procurement technology readiness is indicated in Table 2. Rating is between "Strongly Disagree" to "Strongly Agree" ratings; these represent the degree to which individuals feel confident and ready to embrace the e-procurement technologies. The table presents insight on respondents' needs for implementing technology in procurement processes as well as how responsive they are towards the idea of electronic procurement systems.

Table 2: Distribution of Frequencies for E-Procurement Technology Readiness

Technology Readiness Rating	Frequency	Percentage (%)
Strongly Disagree (1)	9	5%
Disagree (2)	16	8.9%
Neutral (3)	32	17.8%
Agree (4)	74	41.1%
Strongly Agree (5)	49	27.2%
Total	**180**	**100%**

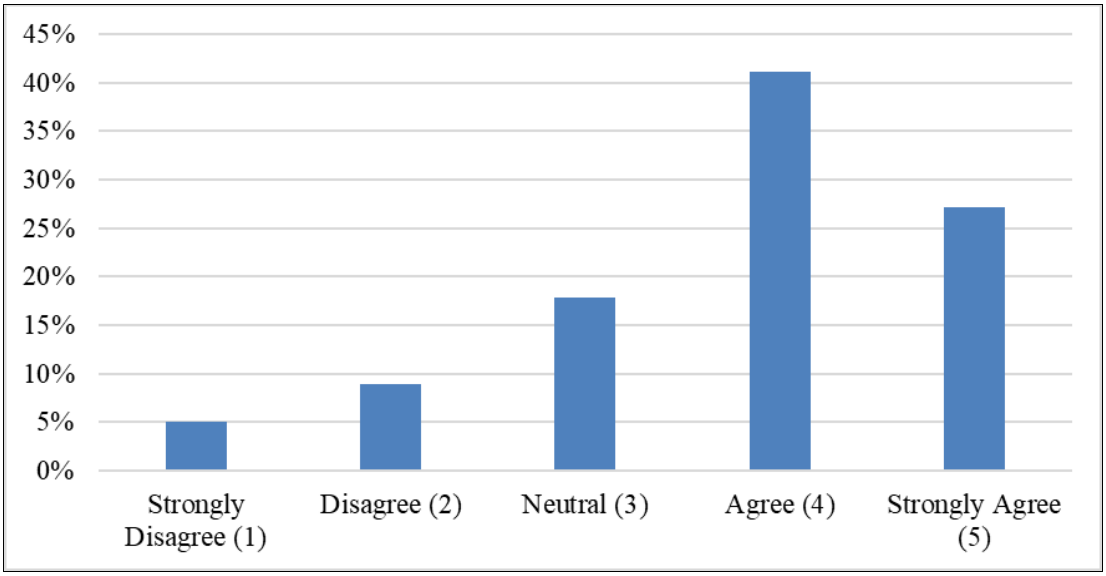

Fig **2:** Graphical representation of Distribution of Frequencies for E-Procurement Technology Readiness

As can be inferred from the outcome, 27.2% strongly agreed, and 41.1% of the respondents agreed that they were technologically ready for e-procurement. This would indicate that the majority of participants have a positive outlook on the implementation of e-procurement technology. However, 17.8% indicated no opinion, which means a degree of reservation or unfamiliarity. While only 5 percent strongly disagreed with the respondents, 8.9 percent disagreed with the respondents showing even less readiness in accepting e-procurement solutions. It shows there is need for specific education and awareness campaigns to enhance procurement's adoption of technology use.

Table 3 details the frequency distribution of respondents' opinion on e-procurement with regard to financial impact. This table inverts a five-point Likert scale, namely, "Strongly Disagree," "Strongly Agree, that is adopted in the current survey to comment categorization. As such, respondents' sentiment concerning the possible effects of cost reduction through this mode of operation may be evaluated in the responses, which consequently supports the need for determining the answers to research questions.

Table 3: Distribution of Frequencies for the Perceived Cost Impact of E-Procurement

Perceived Cost Impact Rating	Frequency	Percentage (%)
Strongly Disagree (1)	7	3.9%
Disagree (2)	22	12.2%
Neutral (3)	40	22.2%
Agree (4)	65	36.1%
Strongly Agree (5)	46	25.6%
Total	180	100%

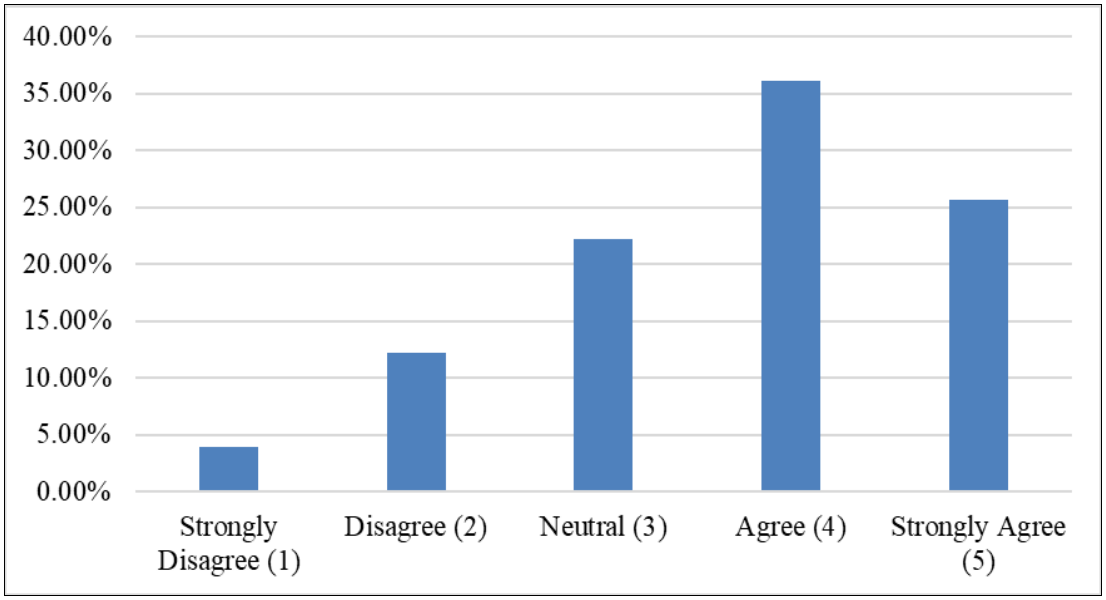

Fig 3: Graphical representation of Distribution of Frequencies for E-Procurement Technology Readiness

As can be derived from the findings, the majority of respondents agree that e-procurement has a cost-effective positive impact. More precisely, 61.7% of the respondents agreed on the financial advantage of e-procurement; out of which 36.1% of them agreed, while 25.6% of them strongly agreed that e-procurement is having a cost reduction-friendly impact. In contrast, 22.2% of respondents neither agreed nor disagreed with this proposition, showing no significant decrease in cost and/or increase in spend. On the other hand, 16.1% of the respondents were skeptical regarding its cost effectiveness (12.2% disagree and 3.9% strongly disagree). Based on this distribution, despite the fact that e-procurement is usually viewed positively with regards to cost impact, there are still those who might have some apprehensions or need to be educated more on its cost benefits.

Conclusion

The result indicates that the acceptance of e-procurement in an Indian tea plant is significantly influenced by the perceived cost impact, technology readiness, and supplier collaboration. Respondents (67.2%) strongly agreed that digital procurement systems do incorporate supplier collaboration aptly and reflect a good trend in supplier involvement even though, naturally, there are obstructions to be overcome. There was a general openness to digital transformation, with some reluctance shown by the readiness of technology support at 68.3% of respondents agreeing or strongly agreeing that they are ready for the adoption of e-procurement. E-procurement was also seen as cost-effective by 61.7% of respondents, confirming its ability to simplify procurement processes and cut costs. However, a significant proportion of neutral or dissenting responses across all three categories indicates the need for targeted strategies to increase supplier digital capabilities, address technological uncertainties, and enhance cost-benefit awareness. Overall, e-procurement adoption in Indian tea factories has promising prospects; however, its widespread adoption needs to overcome supplier-related constraints and regulatory barriers.

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