



A Study on the Procurement Process at St Steels and Pipes

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Abstract

Procurement plays an important role in maintaining the smooth flow of materials and supporting the overall performance of an organization. In a steel and pipe business, delays in purchasing, supplier response, material shortages and ineffective inventory control can directly affect day-to-day operations. This study examines the procurement process followed by ST Steels and Pipes, with particular focus on purchasing procedures, supplier selection and evaluation, approval practices and the role of Enterprise Resource Planning (ERP) in procurement. A descriptive research design was adopted, and primary data were collected through a structured questionnaire from 106 respondents working across different departments of the organization. Percentage analysis was used to understand the responses, while Chi-square, correlation and one-way ANOVA were applied to test selected relationships and differences. The findings indicate that supplier confirmation is the stage that takes the most time in the procurement process, while material shortages are the major procurement challenge. Price was identified as the most common supplier-selection criterion, and ERP was mainly valued for

reducing paperwork and improving inventory control. The study also found a significant association between age and ERP usage frequency ($p = 0.046$). A moderate positive relationship was found between satisfaction with supplier performance evaluation and ERP effectiveness ($r = 0.364$, $p < 0.001$). However, years of experience did not have a significant effect on the selected dependent variable ($F = 1.980$, $p = 0.122$). The study recommends stronger supplier monitoring, improved inventory planning, greater ERP automation, better reporting and regular employee training to improve procurement efficiency.

Keywords: Procurement, Supplier Management, ERP, Supplier Selection, Inventory Management, Procurement Efficiency, Steel Industry



Introduction

Procurement is more than simply purchasing materials. It connects an organization with its suppliers and ensures that the required materials are available in the right quantity, quality, time and cost. When procurement is not properly managed, even a small delay in purchasing or supplier confirmation can affect inventory levels, production activities and customer commitments.

This becomes particularly important in the steel and pipe industry, where organizations have to manage material availability, changing prices, supplier reliability and delivery schedules. ST Steels and Pipes operates in this environment and depends on an effective procurement system to maintain a consistent flow of materials. The company's procurement activities include purchasing, supplier selection, approval, inventory maintenance and the use of ERP systems.

Although the organization has an established procurement system, several practical issues can influence its effectiveness. These include slow supplier responses, price fluctuations, approval delays, supplier performance and shortages of required materials.

Technology has also changed the way procurement is managed. ERP systems allow organizations to maintain purchasing, supplier and inventory information in a more organized manner. However, simply having an ERP system does not automatically make procurement efficient. Employees must understand how to use the system, information must be updated properly, and the system should support actual procurement requirements.

Therefore, this study attempts to understand how procurement works at ST Steels and Pipes, identify the major difficulties faced by employees and examine whether supplier management and ERP usage contribute to procurement effectiveness.

Objectives of the Study

The study was conducted with the following objectives:

1. To study the procurement process followed by ST Steels and Pipes.
2. To understand the purchasing procedures and approval process.
3. To identify the supplier selection and evaluation methods.
4. To study the role of ERP software in procurement.
5. To suggest improvements for enhancing procurement efficiency.

Review of Literature

Gao (2026) “AI Assisted Sustainable Procurement Framework” This article discussed a new AI-assisted framework for sustainable procurement. Gao (2026) revealed that AI could help procurement officers make better purchasing decisions without compromising on supplier or material quality. Therefore, the conclusion is that using AI-assisted procurement management systems is essential for sustainable purchasing.

Balkan & Akyuz (2025) “Artificial Intelligence (AI) and Machine Learning (ML) in Procurement and Purchasing Decision-Support” A Taxonomic Literature Review and Research Opportunities. The article looked at the application of artificial intelligence and machine learning in procurement decision-making. It



revealed that such technologies as AI could be utilized to improve the selection of suppliers, demand planning, risk analysis, and procurement strategy, which would lead to faster and more reliable decision-making. Therefore, the conclusion is that AI and ML have a considerable impact on the enhancement of procurement, supplier selection, and purchasing decision-making.

Dukare & Mohite (2025) “To Study and Optimize Supplier Selection in the Purchasing Cycle” The research aimed at finding optimization methods in the supplier selection process and came to the conclusion that an organization could improve its purchasing cycle through the implementation of multi-criteria analysis. The article suggests looking closer at supplier criteria, such as cost, quality, reliability, delivery, and sustainability. Therefore, the conclusion is that The optimization of the supplier selection process is critical for improving the performance of purchasing and minimizing risks associated with procurement.

Nguyen, Amin & Shah (2024) “Supplier Selection and Order Allocation” A Systematic Literature Review” The article was a systematic literature review of studies on supplier selection and order allocation conducted between 2021 and 2023. The authors identified key trends in the field, including the role of digital technologies, optimization techniques, sustainability, and supplier resilience in modern procurement management. Therefore, the conclusion is that contemporary procurement management should be focused on cost, quality, time, and sustainability.

Benabdellah et al (2024) “Supplier Selection in the Industry 4.0 Era” This literature review article discussed the impact of Industry 4.0 on supplier selection and procurement management. Benabdellah et al. (2024) Found that modern procurement managers are more likely to consider a supplier’s digital readiness and sustainability performance when making purchasing decisions. Therefore, the conclusion is that the rise of Industry 4.0 leads to the need for digital transformation in most areas, including supplier selection and procurement management.

Methodology

Research Design

The study adopted a descriptive research design. The purpose was to understand the existing procurement practices at ST Steels and Pipes and identify areas that require improvement.

Population and Sample

The study covered employees involved in procurement-related activities across different departments of ST Steels and Pipes. The final analysis presented in the project is based on 106 respondents.

Sampling Technique

A purposive sampling approach was used to collect responses from employees who were relevant to the procurement process.

Data Collection

Primary data were collected using a structured questionnaire. The questions covered procurement planning, purchasing procedures, supplier selection, approval procedures, ERP usage, procurement challenges and possible improvement initiatives.

Secondary information was obtained from relevant literature and existing organizational information.



Statistical Tools

The following statistical techniques were used:

- Percentage analysis
- Chi-square test
- Correlation analysis
- One-way ANOVA

These techniques were selected to provide both a general understanding of the responses and statistical evidence regarding relationships among selected variables.

Analysis and Discussion

Procurement Planning

The results show that 38.7% of respondents identified production planning as the main method used to identify material requirements. This indicates that procurement is closely connected with operational requirements.

Purchase requisitions were generally raised when required, suggesting that procurement activity is partly driven by immediate business requirements rather than being based entirely on a fixed purchasing schedule.

This approach can be useful when demand changes frequently, but it can also increase the risk of emergency purchases and material shortages if inventory levels are not monitored carefully.

Delays in the Procurement Process

One of the most important findings of the study is that supplier confirmation was identified as the stage taking the most time, with 40.6% of respondents selecting it.

This finding shows that procurement delays do not necessarily originate inside the organization. Supplier response and confirmation can also become a bottleneck.

A delayed supplier confirmation can affect the subsequent purchase-order process and eventually create difficulties in maintaining sufficient stock.

Therefore, supplier responsiveness should be treated as an important procurement-performance indicator.

Purchase Approval

The study found that 45.3% of respondents were not sure whether the approval process changes according to purchase value. Material urgency was the most commonly identified factor considered before approving a purchase order.

The high level of uncertainty regarding approval rules suggests that employees may benefit from clearer communication regarding purchasing authority and approval limits.

A transparent approval structure can reduce unnecessary waiting and make employees more confident about following procurement procedures.



Supplier Selection and Evaluation

Price was identified as the primary supplier-selection criterion by 24.5% of respondents. Suppliers were most commonly identified through trade exhibitions, while supplier performance was most frequently evaluated on a quarterly basis.

The findings show that cost remains important when choosing suppliers. However, procurement decisions should ideally consider other factors such as:

- Quality
- Delivery reliability
- Supplier responsiveness
- Past performance
- Financial reliability
- Material availability

A supplier offering a lower price may not always provide the best overall value if delivery is unreliable or material quality is inconsistent.

ERP Usage in Procurement

ERP is an important part of the procurement system studied. Around 30.2% of respondents stated that procurement activities are mainly performed using ERP, while 38.7% reported using ERP occasionally.

The most commonly identified benefit of ERP was reduced paperwork, reported by 36.8% of respondents. Better inventory control followed closely at 35.8%.

This indicates that employees recognize the practical value of ERP. The system can reduce manual documentation and make inventory-related information easier to manage.

However, the results also suggest that the full potential of ERP has not yet been achieved.

Areas Requiring Improvement

Inventory management was identified as the area requiring the most improvement, with 34.9% of respondents selecting it. Purchase approval followed at 18.9%.

This finding is significant because inventory and procurement are closely connected. If inventory information is not updated or monitored effectively, procurement decisions may be made too late.

Better inventory visibility can help the company identify stock shortages earlier and reduce unnecessary emergency purchasing.

Major Procurement Challenges

Material shortages were the most commonly reported procurement challenge, accounting for 32.1% of responses.



Price fluctuations were reported by 20.8%, ERP issues by 18.9% and supplier delays by 17.9%.

The findings suggest that procurement problems are caused by a combination of internal and external factors.

Internal factors include inventory planning, ERP usage and approval procedures, while external factors include supplier delays and changes in material prices.

Therefore, improving procurement efficiency requires more than simply changing the purchasing procedure.

Employee Training and Automation

The study found that employee training was considered the initiative most likely to improve procurement, with 33% of respondents selecting it. More automation was also identified as an important requirement for improving ERP effectiveness.

This finding highlights an important practical point: technology can only deliver its full benefits when employees understand how to use it effectively.

Regular training can help employees understand ERP functions, procurement procedures, approval requirements and inventory-related processes.

Statistical Analysis

Chi-square Test: Age and ERP Usage

The study examined whether age was associated with the frequency of ERP usage for procurement activities.

The result produced a p-value of 0.046. Since:

$$p = 0.046 < 0.05$$

the null hypothesis is rejected.

Therefore, there is a statistically significant association between respondents' age group and the frequency with which they use ERP for procurement activities.

However, 50% of the cells had expected frequencies below 5. Therefore, the result should be interpreted with some caution.

Correlation Between Supplier Evaluation and ERP Effectiveness

The correlation analysis produced:

$$r = 0.364$$

and

$$p < 0.001$$

The coefficient indicates a moderate positive relationship between satisfaction with supplier performance



evaluation/corrective action processes and satisfaction with ERP effectiveness.

In simple terms, respondents who had a more positive view of supplier performance evaluation also tended to have a more positive view of ERP effectiveness.

Since $p < 0.001$, the relationship is statistically significant.

This finding supports the idea that technology and supplier-management practices should not be treated separately. A well-managed supplier process can make ERP information more useful, while effective ERP can support better supplier monitoring.

One-Way ANOVA: Years of Experience

The ANOVA produced: $F = 1.980$

$p = 0.122$

Since:

$p = 0.122 > 0.05$

the result is not statistically significant.

Therefore, the null hypothesis is retained. The findings indicate that years of experience do not significantly influence the selected dependent variable in this study.

This suggests that differences in work experience alone may not explain differences in the selected procurement-related outcome.

Major Findings

The study produced the following major findings:

1. Production planning is the main basis for identifying material requirements.
2. Supplier confirmation is the biggest source of delay in the procurement process.
3. Email is commonly used for submitting purchase requisitions.
4. A considerable proportion of employees are unclear about whether approval procedures vary according to purchase value.
5. Material urgency is an important factor considered before purchase approval.
6. Price is the most commonly identified supplier-selection criterion.
7. Trade exhibitions are an important source for identifying suppliers.
8. Supplier performance is commonly evaluated on a quarterly basis.



9. ERP is used for several procurement activities.
10. Reduced paperwork is considered the major benefit of ERP.
11. Inventory management requires the greatest improvement.
12. Material shortages are the biggest procurement challenge.
13. Employees believe that greater ERP automation can improve procurement.
14. Employee training is considered the most useful initiative for improving the procurement process.
15. Age has a significant association with ERP usage frequency.
16. Supplier performance evaluation and ERP effectiveness have a significant moderate positive relationship.
17. Years of experience do not significantly affect the selected dependent variable.

Suggestions

Based on the findings, the following suggestions are proposed.

1. Improve supplier confirmation

The company should establish a clear follow-up mechanism for supplier confirmation. Suppliers who consistently respond slowly should be identified and monitored.

2. Develop supplier performance scorecards

Supplier performance can be evaluated using measurable indicators such as price, quality, delivery time, responsiveness and reliability.

3. Strengthen inventory planning

Regular stock monitoring and better forecasting can reduce material shortages and avoid last-minute purchases.

4. Increase ERP automation

Routine activities such as purchase approvals, notifications, order tracking and reporting can be automated wherever possible.

5. Improve ERP reporting

Management should make greater use of ERP reports to monitor pending purchase orders, supplier performance, stock levels and procurement delays.



6. Conduct regular employee training

Employees should receive periodic training on ERP functions and procurement procedures. Training should be practical and related to the actual tasks employees perform.

7. Clarify approval procedures

The organization should clearly communicate approval limits and authorization responsibilities to employees.

8. Maintain alternative suppliers

The company should maintain a list of reliable alternative suppliers for important materials. This can reduce dependence on a single supplier.

9. Improve coordination between departments

Procurement, warehouse, production and finance should exchange information regularly to ensure that purchasing decisions reflect current operational requirements.

10. Monitor material shortages

The company should identify frequently short-stocked materials and establish appropriate reorder levels or safety-stock policies.

Conclusion

The study examined the procurement process at ST Steels and Pipes and identified the main factors affecting its efficiency. The results show that the company has an established procurement structure involving material planning, purchasing, supplier selection, approval, material receipt, inventory management and ERP usage.

At the same time, the study reveals that some parts of the process require greater attention. Supplier confirmation was identified as the main source of delay, while material shortages were the most significant procurement challenge. Inventory management was also identified as the area requiring the greatest improvement.

The role of ERP is particularly important. Employees recognize its benefits, especially in reducing paperwork and improving inventory control. However, the findings indicate that greater automation, better reporting and employee training are needed if the organization wants to obtain more value from the system.

The statistical results provide additional insight. A significant association exists between age and ERP usage frequency, while supplier performance evaluation has a moderate positive relationship with ERP effectiveness. In contrast, years of experience did not produce a significant difference in the selected dependent variable.

Overall, the study suggests that ST Steels and Pipes does not necessarily need to replace its existing procurement system. Instead, the organization can improve its current system by strengthening supplier monitoring, improving inventory planning, increasing ERP automation, clarifying approval procedures and developing employee capabilities.



Procurement should ultimately be viewed as an integrated function rather than an isolated purchasing activity. When supplier management, inventory, technology and employee skills work together, the organization can reduce delays, avoid material shortages, improve supplier relationships and make better purchasing decisions.