Proceedings of the International Conference on Industrial Engineering and Operations Management

Publisher: IEOM Society International, USA
Published: February 18, 2025
DOI: 10.46254/AN15.20250259

Qualitative Approach Measuring the Impact of Procurement Digitalization Transformation Towards Sustainability

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Abstract

This study examines the impact of digital procurement transformation on sustainability, focusing on how digitalization enhances procurement efficiency, while addressing sustainability challenges. A case study of PT XYZ, a financial services company, explores the increasing complexity of procurement, as it faces challenges in navigating complex regulatory requirements, dynamic operational demands, prevention of bribery and corruption, and necessary risk mitigation. By proposing the digitalization of sustainable procurement, this study offers value by reducing complexity and promoting inclusive economic growth. Data were collected from interviews with employees at a financial services company, utilizing semi-structured discussions with procurement professionals, sustainability officers, and operational stakeholders, including focus group discussions, to capture collective insights. This study applies the Kraljic Matrix framework and ABC Classification to define procurement categories and activities based on two primary factors: profit impact and supply risk. The analysis identified key themes and patterns, assessing three analytical matrices: efficiency gains from e-procurement systems, reductions in environmental impact from data-driven decisions, and challenges in integrating sustainability with digital platforms. The qualitative findings indicate that procurement digitalization enhances stakeholder experience while streamlined procurement process benefits small and medium enterprises, allowing business users to procure directly through a sustainability digital platform without needing approval from the procurement department. The results show that 96% of stakeholders reported positive impacts, particularly in terms of cost, innovation, flexibility, and social responsibility. This study offers valuable insights into the effects of digitalization on sustainable procurement.

Keywords
Sustainability, Procurement Digitalization, Digital Transformation, Procurement Optimization, Trace hold

1. Introduction

1.1. Background

The global insurance industry has experienced significant growth since the COVID-19 pandemic, particularly in 2023. According to a vital insurance report, the international insurance market will increase by 7.5% by 2023, marking the highest growth rate since 2006 (Allianz Global Insurance Report, 2024). This growth results from an increase in premium income across all insurance segments including life, general, and health. Overall, both the global and Indonesian insurance industries show signs of recovery and growth in the post-pandemic landscape.

The rise in business activities in the insurance sector has significantly impacted company operations, particularly in the procurement department. This study reviews procurement operations at a financial services company (PT XYZ) to analyze procurement complexities resulting from an annual increase in procurement demand ranging from 14% to 16% over three years. Table 1 highlights the expense growth aligned with the company's strategic objectives to invest in business technology, digitalization, and automation projects/systems for enhanced operational efficiency.

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Table 1. Historical Spending Purchase 2022 – 2024 (Source: Financial Report PT XYZ)

Spending Performance	Spending Purchase (000' USD)		
	2022	2023	2024
Yearly Spending Report	14,403	16,429	18,989
% Increment		14%	16%

The Procurement Department, which focuses on non-inventory and service categories, faces significant complexities driven by fluctuations in market prices, supply disruptions, complex procedures, cost-saving pressures, ineffective supplier management, a lack of planning, limited resources, corruption, and fraud. Navigating these complexities requires a procurement strategy that balances cost efficiency with quality assurance, while fostering strong supplier relationships. According to Sanders (2020), procurement is a business function responsible for all activities and processes needed to purchase goods or services from suppliers. As organizations continue to adapt to changing market dynamics, procurement plays a critical role in ensuring operational success and *sustainability* (Adebayo et al., 2024; Bag et al., 2021).

1.2. Objectives

This study examines how digitalization affects procurement strategies aligned with future sustainable practices (Boruchowitch and Fritz, 2022) and identifies the benefits, challenges, and opportunities for digital transformation in procurement. Sustainable procurement is essential in modern business, as companies now consider not only economic factors when selecting suppliers and products but also social and environmental aspects (Ghosh et al. 2022). Sustainable procurement yields positive effects, such as minimizing negative environmental impacts by choosing eco-friendly products and services while enhancing a company's reputation, especially among consumers, investors, and the public, who are increasingly focused on corporate social responsibility (Khan and Hinterhuber, 2024; Shahzad et al., 2024).

Implementing sustainable procurement in PT XYZ is crucial to ensure compliance with regulations and create a positive impact on the environment and society. Clear strategies emphasize the importance of cost efficiency, particularly in significant spending, whereas streamlining procurement processes can address these challenges effectively.

2. Literature Review

Procurement plays a critical role in an organization's supply chain. Procurement influences cost and product quality and contributes to sustainability and operational efficiency as a function of providing goods and services for operational activities (Murwaningrum & Yunus, 2024). Through effective procurement practices, organizations can optimize their resource allocation, enhance supplier relationships, and mitigate the risks associated with supply chain disruptions (Shivajee et al., 2023; Sudan et al., 2023). Procurement strategies that consider sustainability can also lead to long-term benefits, including reduced environmental impact and improved social outcomes. Thus, strategic management of procurement is essential for achieving both organizational objectives and broader societal goals (Caniato et al., 2016; Walker & Brammer, 2009).

Integrating sustainability into procurement processes is essential for organizations aiming to align their operations with global sustainability initiatives. Research indicates that sustainable procurement can significantly impact various Sustainable Development Goals (SDGs) by promoting responsible consumption and production patterns (Nunes et al., 2023). Furthermore, organizations that support sustainable procurement practices are better positioned to enhance their corporate reputation and stakeholder trust as they demonstrate commitment to ethical business practices and social responsibility (Subramaniam et al., 2020).

Identifying procurement strategies using The Kraljic Matrix framework can help companies categorize their procurement activities based on two primary factors: profit impact and supply risk. These dimensions help businesses develop targeted procurement strategies (Kraljic, 1983). Companies can formulate appropriate strategies for each category by dividing procurement categories into four quadrants (strategic, bottleneck, leverage, and non-critical). This approach enables companies to focus on risk management and maximize the value of supplier relationships.

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Digitalization has transformed how companies conduct efficient processes. By leveraging digital technologies through digital platforms, companies can enhance the efficiency of procurement processes through automation and source-market analytics. Digital processes allow for expeditious selection and negotiation. Furthermore, digitalization aids transparency in the supply chain, allowing companies to more readily meet the sustainability standards expected by stakeholders (Levata Data, 2024).

In today's rapidly evolving business landscape, sustainability has emerged as a key concern for organizations across various industries. In addition to environmental and social considerations, businesses are increasingly recognizing the significance of adopting sustainable procurement practices. Procurement departments are pivotal in directing an organization's sustainability efforts by ensuring that sourcing decisions align with environmental, social, and governance (ESG) goals. Digitalization is crucial for achieving these objectives, transforming procurement processes, and equipping organizations with tools to make informed, sustainable decisions (Boruchowitch and Fritz, 2022).

Sustainable procurement refers to the process of acquiring goods, services, and works in a way that achieves value for money while promoting social, environmental, and economic benefits (Mehrjerdi and Shafiee M. 2021). This process involves the evaluation of ecological impacts, social implications, economic fairness, and traditional cost considerations. Sustainable procurement aims to ensure that businesses contribute to long-term environmental sustainability, ethical labor practices, and community well-being while supporting economic growth and competitiveness. Key principles of sustainable procurement include reducing the environmental impact by sourcing products and services that minimize adverse effects (e.g., carbon emissions, waste, resource consumption); ensuring social responsibility by requiring suppliers to operate under fair labor practices, uphold human rights, and positively contribute to their communities; and promoting economic efficiency by fostering long-term value for the organization while encouraging fair competition and ethical business practices throughout the supply chain.

Digitalization plays a vital role in transforming sustainable procurement practices. Technological advancements, such as data analytics, have reshaped the evaluation, management, and monitoring of sustainability goals across the entire supply chain. These tools provide the efficiency, transparency, and accountability necessary for driving sustainability in procurement (Mehrjerdi and Shafiee, 2021).

Kraljic Matrix

Procurement faces increasingly complex challenges in the selection, negotiation, and execution of the ordering processes. The Kraljic matrix (Figure 1) provides a framework for organizations to prioritize their procurement efforts, allocate resources effectively, and manage supplier relationships based on the importance of various goods and services. This matrix is essential for optimizing procurement strategies and supply chain management. It was developed by Kraljic in 1983 in his article, 'Purchasing Must Become Supply Management,' published in the Harvard Business Review, 61(5), pages 109-117.

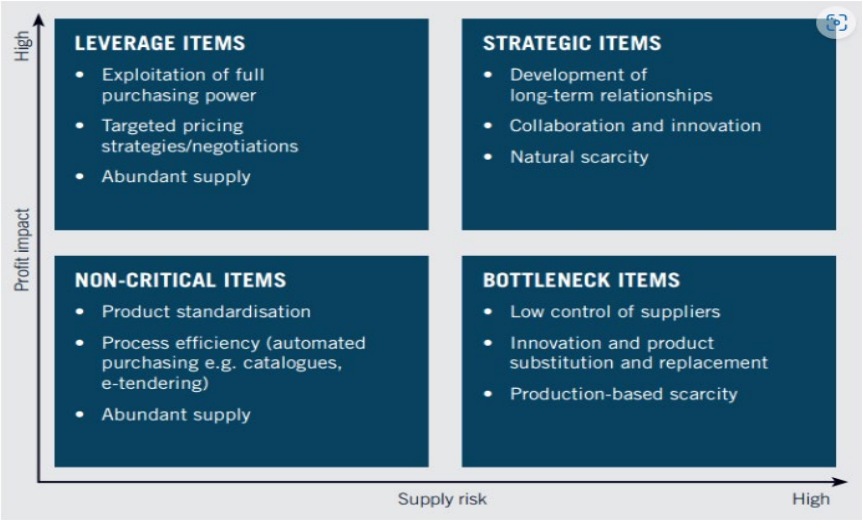

Figure 1. Kraljic Portfolio Matrix Sourcing Strategy (Kraljic, 1983)

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The Kraljic Matrix categorizes items or suppliers based on two primary factors: profit impact and supply risk (Figure 1). Utilizing these two dimensions, the Kraljic Matrix divides procurement into four quadrants:

1. Strategic Items (High Profit Impact, High Supply Risk). These are high-value, high-risk items essential for businesses. Procurement strategies involve establishing long-term relationships, fostering strong supplier partnerships and engaging in strategic sourcing.
2. Leverage Items (High Profit Impact, Low Supply Risk). These items are significant to profitability but come with low supply risk. Procurement focuses on maximizing purchasing power through competitive bidding, negotiations, and economies of scale.
3. Bottleneck Items (Low Profit Impact, High Supply Risk). These items have a lesser impact on profitability but entail high supply risk, often due to limited suppliers or specialized requirements.
4. Non-Critical Items (Low Profit Impact, Low Supply Risk). These are low-cost and low-risk items. Procurement strategies concentrate on streamlining processes, minimizing costs, and reducing administrative burdens.

ABC Classification

ABC Class procurement is a technique for differentiating categories to prioritize procurement activities, focusing on resources and efforts on the most critical and valuable items or suppliers while managing the less critical ones with minimal effort. This classification is often based on Pareto's principle (also known as the 80/20 rule), which states that a small number of items or suppliers typically account for a large portion of a company's total expenditure or impact (Keemers, 2022).

Category A: High-value items or critical suppliers. Category A includes a small percentage of items or suppliers that represent the highest value in terms of cost, strategic importance, and criticality of the business. These items typically account for approximately 60% to 80% of the total procurement value but represent only 10% to 20% of the items or suppliers. Because of their high value and importance, the procurement processes for Category A are tightly controlled and monitored. These items or suppliers often undergo rigorous supplier evaluations, long-term contracts, and close supplier relationship management (SRM).

Category B: Moderate-Value Items or Suppliers. Category B items or suppliers represent a medium level of importance regarding the cost and contribution to overall procurement spending. They account for approximately 20% to 30% of the total spend and include essential products or services but are not as mission-critical as those in Category A. These items or suppliers often constitute a larger portion of the total items, around 20% to 30%, but their total value and impact are lower compared to Category A. Examples include secondary raw materials in manufacturing, office supplies, or support services that are necessary, but not essential, for core operations. Although these items may require regular purchase or maintenance, they do not require the same detailed management level as in Category A. Lead buyers typically adopt a more balanced approach, focusing on efficiency, cost control, and ensuring supply continuity, without the intensive management and strategic focus of Category A.

Category C: Low-value or non-critical suppliers. Category C consists of items or suppliers that account for the lowest procurement value, but are the most numerous. These items typically represent approximately 5% to 15% of the total procurement spending but can make up 50% or more of the total number of items or suppliers. These items are often low-cost, non-critical, and are frequently purchased in small quantities. Examples of these categories include basic office supplies, cleaning services, or low-cost consumables. Although they contribute to the overall procurement process, the time and resources allocated to their management are minimal. For Category C, companies often apply a streamlined procurement process such as purchasing through automated systems, bulk buying for efficiency, or leveraging preferred suppliers for discounts. The lead buyer focuses more on minimizing administrative costs and ensuring consistent supply without significant oversight.

3. Methods

Case study: PT XYZ

PT XYZ is a joint venture insurance company formed by one of the largest banking companies in Indonesia and a global insurance company based in France established in 2003. Over the years, PT XYZ has evolved to offer a comprehensive range of innovative insurance products including life insurance, health insurance, critical illness coverage, pension funds, and financial planning services. PT XYZ has established itself as a leading player in the bancassurance sector in Indonesia, consistently achieving high performance and gaining industry recognition. As of

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2024, it has been recognized for its outstanding achievements, including recording the highest profit in its history (AAJI 2024).

PT XYZ aims to maintain its leadership position in the bancassurance market by innovating and adapting to the changing consumer needs. The company seeks to expand its product offerings, enhance digital capabilities, and strengthen partnerships with financial institutions to drive growth, focusing on sustainability and corporate social responsibility to achieve its business goals and objectives. PT XYZ procurement department plays a vital role in ensuring that the company operates efficiently and effectively. This department is responsible for sourcing the goods and services necessary for a company's operations, including technological solutions, office supplies, and outsourced services. The department aims to optimize costs by implementing strategic procurement practices while maintaining high-quality standards for the products and services acquired, including proactively supporting sustainability and corporate social responsibility (Çankaya, 2020).

An analysis was conducted to identify recurring themes and patterns from the qualitative data and explore the relationship between digitalization and sustainability in procurement. Figure 2 illustrates the flow of the research study, beginning with data collection, profiling the results in the Kraljic Portfolio Matrix, and deriving the optimal procurement strategy recommendation. Based on Kraljic (1983), we evaluated the criticality of item categories for a company and the complexity of its supply chain.

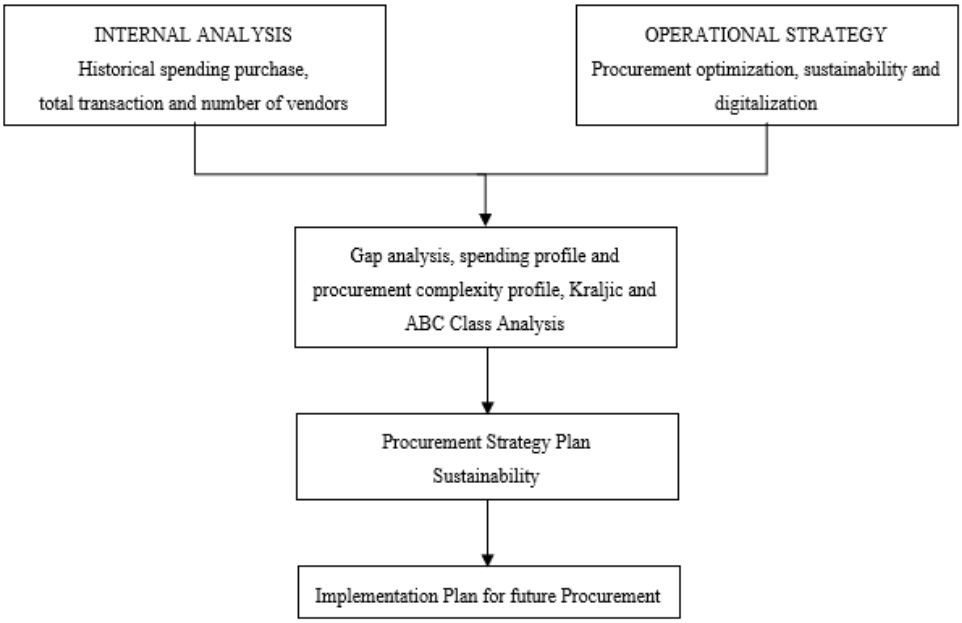

Figure 2. Flow of Framework (Authors' creation)

ABC-Kraljic Classification Matrix

This methodology states that ABC Classification analysis will support the Kraljic result by providing insights into the procurement process, particularly in identifying which items or services should be prioritized based on their value and impact on the organization. Integrating ABC analysis with the Kraljic Matrix enhances decision making in procurement strategies and resource allocation (Zhong, 2022). To effectively visualize the integration of ABC Classification with the Kraljic Matrix, a combined chart is created that categorizes items based on their value (ABC Classification) and their risk/profit impact (Kraljic Matrix). The steps for integrating the ABC Classification with the Kraljic Matrix are outlined below.

1. Data Collection: Gather data on all procurement items, including their annual consumption values and supply risk factors. This may involve collecting quantitative data (e.g., purchase volumes and costs) and qualitative assessments (e.g., supplier reliability and market volatility).
2. ABC classification: Classifies the items into three categories. This classification helps prioritize high-impact items that require more strategic management.

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3. Conduct Kraljic Matrix Analysis: Evaluate each item based on two dimensions: Supply Risk and Profit Impact. Map each item onto the Kraljic Matrix, which divides items into four quadrants (strategic, bottleneck, leverage, and non-critical items)
4. Combine Insights from Both Analyses: Overlay the ABC classification on the Kraljic Matrix to create an ABC-Kraljic classification matrix. For example, items in the strategic quadrant require close supplier collaboration and risk-management strategies. By contrast, the C items in the non-critical quadrant can be managed using simpler procurement processes (Table 2).

Table 2. ABC-Kraljic Classification Matrix

	High Supply Risk	**Low Supply Risk**
High Profit Impact	**Strategic Items (A)** - Require close supplier collaboration and risk management strategies. - Focus on quality assurance and long-term contracts.	**Leverage Items (A)** - Negotiate competitive pricing and favorable terms. - Use multiple suppliers to leverage purchasing power.
Low Profit Impact	**Bottleneck Items (B)** - Identify alternative suppliers to mitigate risks. - Ensure availability through strategic sourcing.	**Non-Critical Items (C)** - Streamline procurement processes for efficiency. - Minimal oversight; focus on cost control.

5. Develop Procurement Strategies: Based on the combined analysis, formulate tailored procurement strategies for each category (see Table 3).
    - Strategic Items: Build strong relationships with suppliers, negotiate long-term contracts, and ensure quality control.
    - Leverage Items: Use competitive bidding to negotiate better prices while maintaining quality
    - Bottleneck Items: Identify alternative suppliers to mitigate risks and ensure availability.
    - Non-Critical Items: Streamline procurement processes to reduce administrative costs.

Table 3. Items Categorization

Item Name	ABC Category	Kraljic Category	Strategy Description
Information Technology BPO	A	Strategic	Build strong relationships, negotiate long-term contracts, ensure quality control.
Facility Management/Property Professional Services	A	Leverage	Use competitive bidding to negotiate better prices, maintain quality.
Marketing MICE	B	Bottleneck	Identify alternative suppliers, ensure availability, manage risks.
Business Travel Equipment General Expense	**C**	**Non-Critical**	**Streamline processes with digital platform buying, focus on sustainability strategy**

6. Monitor and Review: Continuously monitor suppliers' performance and procurement strategies' effectiveness. Adjust classifications as market conditions change or as new data become available.

4. Data Collection

This study employed qualitative methods as the foundation of the research approach, including interviews, observations, and analyses of the existing theories. The research data were collected from the case study of PT XYZ through in-depth, semi-structured interviews with the Finance Department, Corporate Communication officers, and operational stakeholders. A Focus Group Discussion (FGD) was also conducted to facilitate discussions among procurement teams to gather collective insights into digitalization and sustainability. Research activities commenced

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with diagnosing current problems, particularly at PT XYZ, collecting relevant data, and utilizing management theory and analytical tools to design the desired procurement strategy. Table 4 outlines the types and sources of the data, data collection techniques, and data analysis methods.

A questionnaire was formulated based on the FGD results (Appendix A). It followed a structured evaluation method to ensure objectivity, consistency, and reliability: (1) define the evaluation criteria and scoring framework, (2) collect and review questionnaire responses, (3) assign scores based on the response scale, and (4) calculate the total score and weighting.

Table 4. Method of Data Collection and Analysis

Research Step	Data Sources	Data Collection	Analysis
Procurement Risk	PT XYZ procurement spending data (2022-2024)	Interview and FGD: Finance Director, Finance Controller, Strategic Sourcing Manager	Procurement spending analysis & complexity profile
Formulation sourcing category	Budget department expense code	Desk research	Sourcing category items current vs proposal
Ordering process improvement	Ordering lead time data historical	Desk research	Procurement working improvement through digitalization

4. Results

Strategy formulation involves preparing scenario options that can be implemented by the company based on the gathered data. This process helps the company to adopt the right procurement strategy. A category spend profile is a tool for analyzing expenditures from high to low, identifying where the greatest spending occurs and which categories require a more strategic approach. By categorizing and analyzing spent data, procurement identifies opportunities for cost reduction, supplier consolidation, strategic sourcing and ultimately improving procurement efficiency. This allows procurement teams to shift from tactical purchasing, focusing solely on price, to a more strategic approach that considers long-term supplier relationships, innovation, and risk management (Nenavani and Jain, 2022). The study, which examined spending on purchases in 2024, showed that Information Technology led to the highest spending categories, while items such as Equipment, Travel, and General Expenses experienced the least spending (Figure 3).

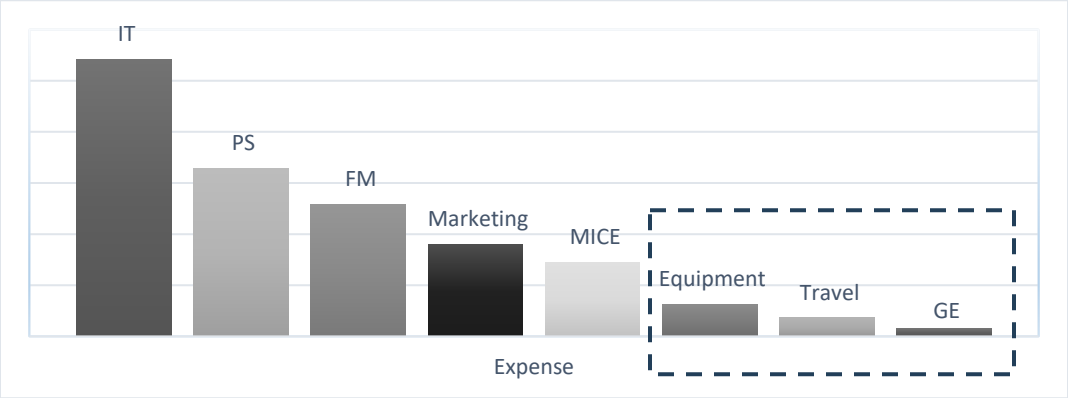

Figure 3. Spending Purchase 2024 (Authors' Work)

ABC Classification identifies the purchase of strategic items with high cost and complexity for procurement. Based on data collection for the historical spending purchase year of 2024, this study classified purchase categories based on the following results. Table 5 shows that classes A and B are important categories that contribute to high spending.

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Class C is less spent, contributing to only 7% of the total spending, but it has high complexity because many suppliers are involved.

In the case of a financial organization such as PT XYZ, Category A suppliers may include those providing mission-critical Information Technology services, such as software, IT infrastructure or business process technology/automation/system. Specific lead buyers manage these categories and dedicate more time to negotiating favorable terms, monitoring supplier performance, and managing associated risks with these suppliers.

Table 5. ABC Class Analysis

Classification	Purchase Categories	Purchase Transaction (000' USD)	% spending	No of Vendors
A	IT_Information Technology	13,682	72%	82
	FM_Facility Management/Property			
	PS_Professional Services			
B	Marketing	3,925	21%	90
	MICE			
C	Travel	1,382	7%	173
	Equipment			
	GE_General Expense			
		18,989	100%	345

The Kraljic Portfolio Matrix has grouped strategic options according to the supply risk and profit impact analysis results. In the Kraljic Matrix, strategic items are critically important for businesses. These items have the characteristics of large profits but limited supply availability. This situation balances the power between buyers and suppliers. Buyers need suppliers because of the risk of supply, whereas suppliers try to maintain their business with buyers. In this study, the categories of information technology and Business Process Optimization projects are strategic items. The classification of bottleneck items is based on a lower impact on profitability, but drives the high supply risk, limitation of suppliers, or specialized needs. Marketing needs (promotion/digital marketing activities, advertisement) and MICE (Meeting, Incentive, Conference, and Entertainment) fall under bottleneck item classification. Professional Services and Facility management/properties are classified under leverage items, considering the need to maximize purchasing power through competitive bidding, negotiations, and economic scale.

The positions of business travel, General Equipment and General item categories in the Kraljic Portfolio Matrix are illustrated in Figure 4 and are classified as non-critical items.

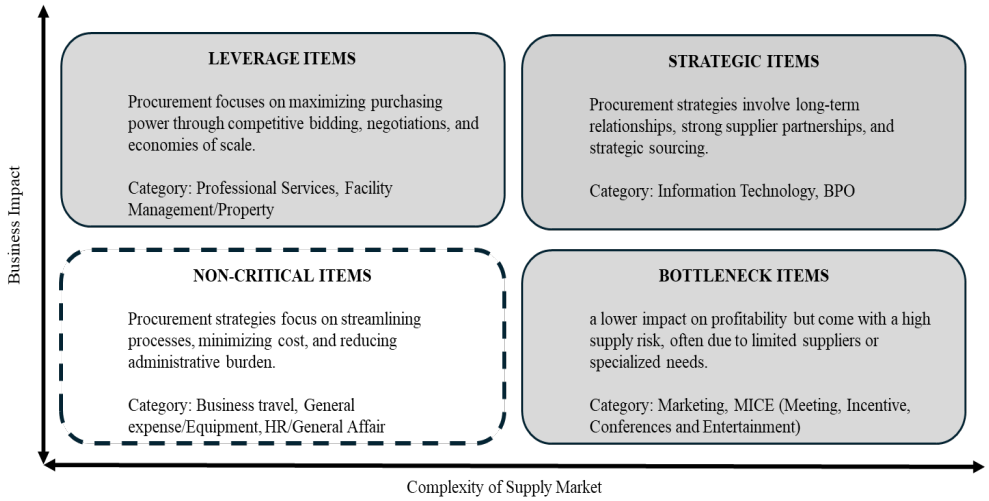

Figure 4. Kraljic Analysis (Authors' Work Based on the Kraljic, 1983)

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Strategies for Implementing Sustainable Procurement for Small Purchases

This study combines insights from both ABC classifications in the Kraljic Matrix to create an ABC-Kraljic Classification Matrix based on historical spending purchases. In this study, the IT and BPO categories that fall into the strategic quadrant require close supplier collaboration and risk management strategies, whereas the business travel, equipment, and general expenditure categories in the non-critical quadrant can be managed with simpler procurement processes (Table 6).

Table 6. ABC- Kraljic Analysis

Item Name	ABC Category	Kraljic Category	Strategy Description
Information Technology BPO	A	Strategic	Build strong relationships, negotiate long-term contracts, ensure quality control.
Facility Management/Property Professional Services	A	Leverage	Use competitive bidding to negotiate better prices, maintain quality.
Marketing MICE	B	Bottleneck	Identify alternative suppliers, ensure availability, manage risks.
Business Travel Equipment General Expense	**C**	**Non-Critical**	**Streamline processes with digital platform buying, focus on sustainability strategy**

Based on Table 6, PT XYZ provided an assessment focusing on Class C categories to reduce the complexity considered to manage 173 suppliers with lower purchase expenses and determine the efficiency idea for selection and ordering lead-time activities. The design strategy creates a considered purchase through the digital platform PADI (digital platform), which empowers local sellers from the MSMEs community.

PADI, or Pasar Digital UMKM (MSME), is a digital platform initiated by Telkom Indonesia, in collaboration with the Ministry of State-owned Enterprises (BUMN). Launched to facilitate procurement processes, PADI connects micro, small and medium-sized enterprises (MSMEs) with state-owned companies, enabling them to become suppliers and vendors. This platform promotes transparency and efficiency in procurement by allowing all transactions to be conducted online, thereby ensuring detailed and secure financial processes. PADI also features tools, such as Tender Kilat, which streamlines the procurement process by enabling buyers to request goods and services quickly and efficiently. PT XYZ as part of JV with one of BUMN plays a significant role in supporting the PADI platform by providing vendor solutions that enhance the operational capabilities of MSMEs involved in the procurement process. This support not only empowers MSMEs to participate more actively in the digital marketplace, but also aligns with the broader goal of fostering sustainable economic growth through increased access to procurement opportunities with BUMN. Through its partnership with PADI, PT XYZ has contributed to creating a more inclusive and efficient procurement ecosystem in Indonesia.

With purchases through PADI, the business user can deal directly with the community vendors registered in PADI and direct purchases without contribution procurement to involve the bidding process and negotiation. The trace-hold procurement method allows users to make direct purchases through the PADI platform without going through the procurement department. This method is designed to streamline the purchasing process for items with lower spending thresholds, thereby enhancing efficiency, reducing order lead-time, and reducing procurement complexity.

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Table 7. Total Order Transaction

Purchase Categories	Quantities Order Transaction			
	Less than 500 USD	Less than 1000 USD	Less than 2000 USD	Spending Purchase
Yearly Spending Purchase (USD)	55,219	164,230	210,073	18,989,000
Marketing	28	44	50	814
Equipment	23	39	39	
Business Travel	19	23	25	
MICE	48	66	70	
General Expense	117	168	183	
Total Order Transaction	**235**	**340**	**367**	**814**

Based on the historical order transactions in Table 7, PT XYZ analyzes the threshold recommendation with considerations such as total purchase transactions, total annual spending, and item categories. The design proposal varies based on the needs, complexity, and management decisions. In Table 8, PT XYZ can give the recommendation trace that holds less than 1000 USD, with a complexity order of 42% and a risk amount of less than 1%.

Table 8. Threshold Proposal

	Tracehold Proposal		
	Less than 500 USD	Less than 1000 USD	Less than 2000 USD
Order Complexity	235 out of 814 orders = 29%	340 out of 814 orders = 42%	367 out of 814 orders = 45%
Spending Contribution compare with Yearly purchase	0.3%	0.9%	1.1%

The analysis of this study to enhance decision-making efficiency in procurement, particularly for low-spend purchases, indicates that PT XYZ recommends allowing item purchases through the PADI platform in collaboration with a network of micro-, small-, and medium-sized enterprises (MSMEs). This fosters partnerships that support local businesses and drives community growth. By prioritizing MSMEs, this initiative streamlines procurement and aligns with unstainable business practices.

To simplify procurement for efficient order processes, PT XYZ is shifting low-value purchases to the PADI platform, thereby eliminating unnecessary steps using the trace-hold method. Trace holds enable business users to make direct purchases through the PADI platform, without involving procurement. This reduces order administration and allows the procurement team to focus on higher value purchasing activities In summary, PT XYZ's use of the PADI platform demonstrates a commitment to simplifying procurement while empowering MSMEs. This strategy enhances operational efficiency, reduces complexity, and supports sustainable economic development. To empower the simplification and sustainability program, PT XYZ generates a threshold procurement recommendation with mutual benefits.

- Direct Access: Users can access a wide range of products and services directly from verified suppliers on the PADI platform, eliminating the need for lengthy procurement procedures.
- Simplified Process: By allowing direct purchases, this method simplifies the procurement process, enabling faster decision making and transaction completion. This is particularly beneficial for low-value items that do not require an extensive evaluation.
- Real-time Tracking: The PADI platform offers features such as real-time tracking of orders, ensuring that users can effectively monitor their purchases and receive timely updates.
- Cost Efficiency: Reducing the steps involved in procurement leads to lower administrative costs and faster turnaround times, making it a cost-effective solution for organizations.
- Empowerment of Users: This method empowers employees to make purchasing decisions directly, fostering a more agile and responsive procurement environment.
- Support for MSMEs: By facilitating direct transactions, the trace-hold Procurement Method supports Micro, Small, and Medium Enterprises (MSMEs) by increasing their visibility and accessibility to larger organizations.Based on the data, the simplified procurement process accommodates small and medium

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purchases of less than 1,000 USD, and the user can lead directly without the procurement department's approval.

Based on the questionnaire, as displayed in Appendix A, the evaluator from the Finance Department, Corporate Communication officers, and operational stakeholders indicated a 96% positive impact with a score of 4.78/5, indicating good adoption of procurement transformation on sustainability with faster processes, cost savings, sustainability compliance, and better supplier management.

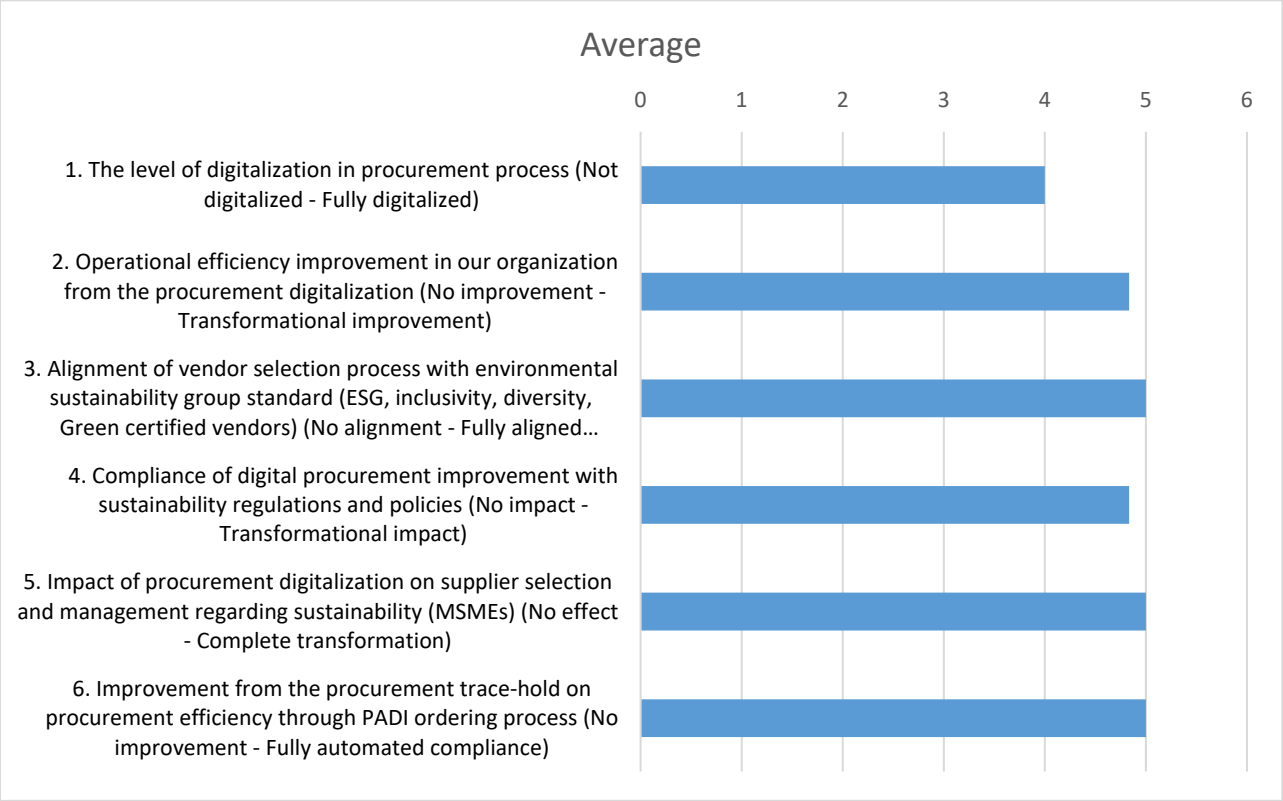

Figure 5. Stakeholders' Evaluation of the Digital Transformation in the Procurement Process

Figure 5 shows that the stakeholders support the automation procurement ordering process using the PADI platform with a 1,000 USD threshold for direct purchases, prioritizing sustainable suppliers by implementing ESG scoring and requiring carbon footprint tracking, Enhance Cost, Compliance & Risk Management tracking report using real-time dashboards to ensure more reliable and transparent data, and Support MSMEs & Local Vendors with expanded digital procurement access. In the overall summary assessment, we listed the main activity outputs that drive the efficiency processes, environmental impact, and sustainability results (Table 9).

Table 9. Matrix Assessment Result

Matrix	**Description**	**Key Metrics**	**Key Result & Solution**
Efficiency Result	Assessment of how *procurement optimization*, reduce lead times, and supplier selection processes.	Ordering process reduction, cost efficiency	Reduce LT order from 5 days to 3 days Trace hold policy < 1,000 USD
Environmental Impact Reduction	Analysis digitalization through PADI Platform and resource consumption across the operation	Reduce administration work, resource allocation optimization	Administration work reduce due to applied trace hold procurement

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Sustainability Integration	Identification sustainability solution within digital platforms PADI to ensure comply with environmental and social goals.	stakeholder engagement level	Ordering process through digital reliable platform PADI for purchase less than 1,000 USD each item/order

Implications for Practices

Based on these findings, this study suggests that managers should enhance procurement efficiency while achieving sustainability goals by prioritizing digital procurement transformation. Implementing a digital procurement platform, especially platforms endorsed by the government, can streamline sourcing processes, reduce administrative burden, and foster greater transparency. Companies should also adopt the trace-hold procurement method, allowing business users to purchase directly for low-value transactions, accelerate procurement cycles and reduce operational bottlenecks. Additionally, integrating ESG scoring and carbon footprint tracking into procurement decision-making can help businesses align their operations with sustainability objectives, while maintaining compliance with regulatory standards.

Furthermore, procurement managers should focus on supplier engagement strategies that support MSMEs and local vendors by leveraging digital platforms to expand their access to corporate procurement networks. By categorizing procurement activities using the ABC-Kraljic Classification Matrix, organizations can allocate resources more efficiently, prioritize strategic suppliers and develop tailored risk-mitigation strategies. Companies should also establish real-time procurement monitoring dashboards to enhance their cost control, compliance tracking, and risk management. These initiatives improve operational efficiency and reinforce a company's commitment to sustainability, stakeholder inclusivity, and long-term value creation.

6. Conclusion

Business users' decision to order through the digital platform PADI presents an option for advancing procurement digitalization transformation towards sustainability. The implementation of traceability leads to greater procurement efficiency and optimization. By digitizing procurement processes, organizations can better manage supply chain risks, improve transparency, and foster stronger and more sustainable relationships with suppliers. Qualitative impacts, such as improved risk management, increased supplier accountability, and better decision making, help companies achieve their sustainability goals while maintaining a robust procurement strategy.

This study will help procurement to focus more on value-added activities to achieve cost efficiency, budget control, and sustainability. The revamp of procurement procedures aims to increase efficiency, improve compliance, and align the procurement processes with sustainability goals. This revamp focuses on modifying the ordering threshold flow and leveraging digitalization to optimize procurement sustainability.

While the findings offer valuable insights, this study acknowledges several limitations. First, this study examines a single case study of PT XYZ, which limits the generalizability of the findings to other industries with different procurement regulations and challenges. Second, this study focuses on short-term efficiency gains instead of long-term sustainability impacts of digital transformation, such as supplier resiliency or carbon footprint reduction. Future studies could enhance the findings by longitudinally examining the impact of digital transformation on more comprehensive sustainability performance metrics.

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Appendix A

Table A. Questionnaire to Assess Digital Transformation

No.	Question	Weighted	Type	Response Scale / Options	Score (if applicable)
1	What is your role in Organization, and how long have you been involved in procurement processes?		Open-ended	Role: …… Involved in Procurement Process/governance: Y/N	
2	How would you rate the level of digitalization in procurement process?	5	Scale	○ 1 = Not digitalized ○ 2 = Minimal digitalization (1 system) ○ 3 = Partially digitalized (2 systems) ○ 4 = Partially digitalized (3 systems) ○ 5 = Fully digitalized (more than 3 systems)	**1 up to 5**
3	How has procurement digitalization improved operational efficiency in our organization?	5	Likert Scale	○ 1 = No improvement ○ 2 = Slight improvement ○ 3 = Moderate improvement ○ 4 = Significant improvement ○ 5 = Transformational improvement	**1 up to 5**
4	How has vendor selection process through PADI aligned with environmental sustainability group standard (ESG, inclusivity, diversity, Green certified vendors)?	5	Likert Scale	○ 1 = No alignment ○ 2 = Slight alignment ○ 3 = Moderate alignment ○ 4 = Significant alignment & comply ○ 5 = Fully aligned compliance	**1 up to 5**
5	How has digital procurement improved compliance with sustainability regulations and policies (related to PADI platfoam)?	5	Likert Scale	○ 1 = No impact ○ 2 = Slight impact ○ 3 = Moderate impact ○ 4 = Significant impact ○ 5 = Transformational impact	**1 up to 5**
6	How has procurement digitalization affected supplier selection and engagement regarding sustainability (SMSE/UMKM)?	5	Likert Scale	○ 1 = No effect ○ 2 = Slight improvement ○ 3 = Moderate improvement ○ 4 = Significant improvement ○ 5 = Complete transformation	**1 up to 5**
7	How has procurement tracehold will drive procurement efficiency through PADI ordering process?	5	Likert Scale	○ 1 = No improvement ○ 2 = Slight improvement ○ 3 = Moderate improvement ○ 4 = Significant improvement ○ 5 = Fully automated compliance	**1 up to 5**
8	Which digital procurement technologies has Organization implemented? (Select all that apply)		Multiple Choice	○ P2P Flip (Procure to Pay) ○ E-procurement platforms PADI ○ SAP Ariba ○ Coupa Procurement ○ Oracle Procurement Cloud	**1 up to 5**
9	What challenges do you face in integrating sustainability criteria into digital procurement?		Open-ended		
10	What are your recommendations for enhancing the role of digital procurement in driving sustainability?		Open-ended		

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