International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14, Issue 12, UCBO - 2026

Optimizing the Procure-to-Pay Process Through Supplier Coordination and Delivery Tracking at Powercon Ventures

Samarth Kalshetti
Student, MBA- Operations and Supply Chain Management,
School of Business,
Indira University,
Pune, India 41103
samarthkalshetti43@gmail.com

Dr. Rushikesh Nalawade
Associate Professor – MBA, School of Business
Indira University
Pune, India 411033
rushikesh.nalawade@indirauniversity.edu.in

Dr. Manisha Maddel
Associate Professor, School of Business,
Indira University,
Pune, India-411033
manisha.maddel@indiraisbs.edu.in
ORCID: 0009-0008-1720-2959

Abstract **- This study examines the Procure-to-Pay (P2P) process at Powercon Ventures Private Limited, with particular emphasis on supplier coordination, purchase order processing, and material delivery tracking. The research is based on practical On-the-Job Training conducted in the Purchase Department from 16 April 2026 to 15 July 2026. A descriptive, process-oriented approach was adopted using direct observation, participation in procurement activities, ERP records, Excel data, and discussions with relevant stakeholders. The study reviews material requirement verification, quotation collection, comparative evaluation, commercial negotiation, approval procedures, supplier follow-ups, and delivery confirmation. The observations indicate that procurement performance depends on coordination between project sites, the Purchase Department, suppliers, stores, and finance. The study also identifies opportunities to improve material-priority visibility, approval monitoring, supplier communication, and delivery-status tracking. Recommended measures include structured follow-up records, automated reminders, clearer criticality indicators, and procurement performance measurement. These measures can support better purchasing decisions, improve material availability, and strengthen coordination across Powercon's renewable-energy projects.**

Keywords - Procure-to-Pay, Supplier Coordination, Delivery Tracking, Procurement Efficiency, Purchase Order, Renewable Energy, Supplier Relationship Management, ERP.

I. INTRODUCTION

The transition toward sustainable power has positioned the renewable energy sector, particularly wind energy, as a critical component of India's infrastructure. Operating within this dynamic and capital-intensive landscape is Powercon Ventures Private Limited, an Indo-German joint venture specializing in wind-energy asset creation, operations, and maintenance (O&M). Because renewable-energy assets are geographically distributed across multiple project sites, maintaining continuous project execution and optimal asset performance relies heavily on a robust supply chain. In this environment, the timely availability of materials for installation and ongoing maintenance is not just an administrative necessity, but a core driver of operational success. Consequently, efficient procurement functions as a vital backbone, directly influencing project continuity, cost control, and the organization's overall market competitiveness.

This research paper, titled "Improving Procurement Efficiency Through Supplier Coordination and Material Delivery Tracking," systematically examines the Procure-to-Pay (P2P) cycle within Powercon's Purchase Department. In a project-based renewable-energy environment, procurement extends far beyond simply acquiring materials at the lowest possible price. It is a highly cross-functional activity that requires optimizing multiple complex parameters simultaneously, including material criticality, supplier reliability, transportation distances, delivery lead times, and site inventory visibility. A failure to efficiently manage these variables can lead to material shortages or delayed deliveries, which subsequently interrupt critical maintenance schedules and hinder project execution. Therefore, effective supplier coordination and rigorous delivery

(This work is licensed under a Creative Commons Attribution 4.0 International License.)

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14, Issue 12, UCBO - 2026

tracking are essential to mitigate operational risks, ensuring that the right materials reach the right locations precisely when needed.

The primary objective of this study is to analyse the existing P2P processes to identify actionable opportunities for improving overall procurement efficiency. By closely evaluating supplier coordination activities—ranging from quotation collection and commercial negotiation to consistent vendor follow-ups—the research highlights the operational factors that contribute to procurement and delivery delays. Furthermore, the study examines the interconnected roles of various internal stakeholders, including project managers, store teams, and finance personnel, to pinpoint crucial bottlenecks in material requirement planning and purchase order (PO) processing. Ultimately, this paper aims to provide practical recommendations that enhance inventory visibility, streamline cross-functional communication, and accelerate purchase approvals, transforming procurement into a strategic optimization process that fortifies Powercon's renewable-energy operations.

II. LITERATURE REVIEW AND THEROTICAL BACKGROUND

A. *Literature Review*

Hader et al. (2022) examine blockchain for P2P traceability; Thakkar and Lad (2026) propose autonomous multi-agent optimization; Zaghdoudi et al. (2024) combine delay prediction, supplier selection, and stakeholder collaboration; and Issah et al. (2025) link procurement optimization, IT integration, and supply-chain performance. Martínez-Martínez (2008) investigates ERP and supplier coordination, while Alexandre et al. (2017) and Momiwand and Shahin (2012) demonstrate process-based and SRM approaches to lead-time reduction. Mogere and Otuyah (2020) review SRM's effects on procurement performance, whereas Li et al. (2016) emphasize visibility across lower-tier suppliers. Gupta et al. (2025) apply predictive analytics to inbound logistics and vendor reliability; Jayaram and Vickery (1998) relate procurement lead time to firm performance; and Albinkhalil and Razzaque (2021) examine e-procurement, supplier relationships, and integration. Muchiri and Moronge (2019) identify ICT, employee skills, cost, quality, and time management as integration factors. Olaore and Adebisi (2013) connect purchasing with accounting, while Narayanam et al. (2021) propose blockchain-based accounts-payable reconciliation. Hallikas et al. (2019) assess digital information integration; Lin et al. (2008) link collaborative procurement maturity with performance; Mirnourollahi and Rabbani (2022) model coordinated delivery-time reduction; and Kusumba (2025) addresses integrated order-and-invoice tracking. Collectively, these studies justify a Powercon framework emphasizing digital integration, supplier coordination, delivery visibility, lead-time control, and payment accuracy.

B. *Therotical Background*

The theoretical foundation of this project is rooted in Procurement, Supply Chain, and Supplier Relationship Management (SRM), providing a framework to analyse operations at Powercon Ventures. In a project-driven renewable-energy environment, procurement extends beyond transactional purchasing; it is a strategic, cross-functional process bridging project sites, suppliers, logistics, and finance.

Central to this study is the Procure-to-Pay (P2P) cycle, which encompasses the entire sequence from material requirement planning (MRP) to final payment. Procurement efficiency within this cycle is achieved by minimizing lead times and operational risks while ensuring timely material availability. Achieving this requires robust MRP and real-time site inventory visibility to prevent both stock-outs and redundant purchases.

Furthermore, the framework emphasizes that effective SRM—through continuous vendor communication, quotation management, and commercial negotiation—is critical for streamlining purchase order (PO) processing and reducing delays. Crucially, procurement decisions must rely on a Total Cost perspective rather than merely the lowest quoted price. Variables such as supplier reliability, transportation distance, delivery lead times, and material criticality are vital during comparative analysis.

Ultimately, modern procurement operates as a multi-parameter optimization process. By synchronizing material planning, supplier coordination, and cross-functional communication, organizations can optimize lead times, control costs, and mitigate supply-chain risks, ensuring seamless project execution.

III. MATERIALS AND METHODS

This study utilizes a descriptive, process-oriented research design based on practical On-the-Job Training (OJT) conducted at Powercon Ventures Private Limited from 16 April 2026 to 15 July 2026. Rather than employing conventional questionnaire-based sampling, the methodology relies on direct observation and active participation within the Purchase Department. Primary data was collected through hands-on involvement in the daily procurement workflow, processing approximately 15 to 20 material requirements weekly across multiple wind-energy project sites. Operational data was continuously tracked using Excel records, the organization's ERP system, and informal discussions with cross-functional stakeholders. Secondary data was sourced from academic literature.

A. *Research Objectives*

Objectives of the Study

To guide the empirical inquiry, the study was structured around four core objectives:

1. To examine the existing procure-to-pay workflow at Powercon Ventures, from material requirement identification to invoice processing and payment.
2. To evaluate supplier coordination, quotation comparison, negotiation, and purchase order processing in supporting procurement efficiency.
3. To analyze delivery tracking practices, communication gaps, and coordination challenges affecting material availability across project locations.
4. To recommend practical improvements in ERP visibility, procurement prioritization, supplier follow-up, and delivery monitoring.

(This work is licensed under a Creative Commons Attribution 4.0 International License.)

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14, Issue 12, UCBO - 2026

B. Research Methodology and Time Frame

This study adopted a qualitative case-study and direct observational design to examine procurement workflows at Powercon Ventures Private Limited, Pune, during OJT from 16 April to 15 July 2026. The methodology combined participation in purchasing activities, observation of the Procure-to-Pay process, coordination with purchase personnel, and interactions with suppliers and project stakeholders. ERP information and procurement records supported process mapping, tracing activities from material requirement identification through purchase order processing, delivery tracking, material receipt, and GRN documentation.

IV. DATA ANALYSIS AND DISCUSSION

TABLE I. PROCUREMENT PROCESS

Procurement Process			
Procurement Stage	***Key Activity / Data Observed***	***Department / Stakeholder Involved***	**Effect on Procurement**
Material Requirement Received	Requirements received from project sites based on project needs	Project/Site Team, Purchase Department	Initiates procurement cycle
Requirement Review	Description, specification and quantity reviewed	Purchase Department, Site Team	Reduces requirement-related errors
Store Availability Check	Availability of required material checked in stores	Purchase, Stores	Helps avoid unnecessary procurement
Procurement Requirement Identification	Items unavailable in stores identified for procurement	Purchase Department	Establishes actual procurement need
Vendor Identification	Suitable suppliers identified	Purchase Department	Creates supplier options
RFQ / Quotation Process	Quotations requested from suppliers	Purchase, Suppliers	Provides commercial alternatives
Quotation Collection	Supplier quotations collected	Purchase, Suppliers	Provides data for comparison
Quotation Comparison	Price, specification and commercial terms compared	Purchase Department	Supports supplier evaluation
Commercial Evaluation	Price, availability, delivery and other factors evaluated	Purchase Department	Supports procurement decision
Target Rate / Negotiation	Target rates discussed and negotiated	Purchase, Suppliers	Provides scope for commercial improvement
Supplier Finalization	Supplier selected based on commercial and operational suitability	Purchase Department	Enables PO processing
PO Processing	Purchase Order prepared and submitted for approval	Purchase, Management	Formalizes purchase
Supplier Confirmation	Supplier confirmation obtained after PO release	Purchase, Supplier	Confirms order acceptance
Material Dispatch	Supplier dispatches material	Supplier, Logistics	Initiates physical movement
Delivery Tracking	Dispatch and transportation followed until delivery	Purchase, Supplier, Logistics	Supports timely delivery
Material Receipt / GRN	Material physically received and GRN completed	Stores, Purchase, Finance	Completes procurement cycle

Table I presents the major stages of the procurement process observed during the on-the-job training at Powercon Ventures Private Limited. The process begins with material requirements received from project sites and proceeds through requirement verification, store availability checks, supplier identification, quotation collection, and commercial evaluation. Supplier finalization and purchase order processing formalize the procurement decision, while supplier confirmation and delivery tracking help monitor the movement of materials to the required project locations. The final stage involves physical material receipt and Goods Receipt Note (GRN) documentation. The table highlights the coordination required among the Purchase Department, site teams, suppliers, stores, logistics, and finance personnel. It also establishes the process framework for examining procurement delays, approval stages, supplier coordination, and material delivery visibility.

(This work is licensed under a Creative Commons Attribution 4.0 International License.)

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14, Issue 12, UCBO - 2026

TABLE II. SUPPLIER COORDINATION AND PURCHASE ORDER PROCESSING

Procurement stage Procurement stage	Key activity / data observed		
	Key activity / data observed	*Department / stakeholder involved*	*Effect on procurement*
RFQ and quotation collection	Quotations requested and received from suitable suppliers	Purchase Department, suppliers	Provides alternative commercial offers
Quotation comparison	Price, specifications, availability, and delivery terms compared	Purchase Department	Supports supplier evaluation
Target rate and negotiation	Rates and commercial terms discussed with suppliers	Purchase Department, suppliers	Creates scope for cost and term improvement
Supplier finalization	Supplier selected according to commercial and operational suitability	Purchase Department	Enables purchase order preparation
PO preparation	Purchase order prepared with material and commercial details	Purchase Department	Formalizes the purchase requirement
Internal approval	Purchase order routed through the prescribed approval hierarchy	Purchase Manager and designated approvers	Establishes authorization before release
Supplier confirmation	Supplier confirmation obtained after PO release	Purchase Department, supplier	Confirms order acceptance and supports dispatch planning

Table II presents supplier coordination is a continuous activity throughout the purchasing cycle rather than a single communication step. Quotations provide the basis for comparing prices, specifications, availability, and delivery commitments. Commercial negotiation helps clarify the final rate and relevant terms before supplier finalization. The purchase order then converts the selected offer into a formal procurement commitment. Internal approval and supplier confirmation are important because delays at either stage can postpone dispatch planning. Maintaining a clear record of quotation status, negotiation outcomes, approval progress, and supplier confirmation would improve process visibility. These records can also help the Purchase Department identify pending actions and prioritize follow-ups for materials required at project sites.

TABLE III. PURCHASE ORDER APPROVAL WORKFLOW ANALYSIS

Approval stage			
	Responsible stakeholder	***Main responsibility***	***Procurement significance***
Initial review	Purchase Manager	Reviews purchase requirement and order details	Checks procurement completeness
Material review	Material Head / LLP Heads	Reviews material requirement where applicable	Supports requirement validation
Project review	Project Manager	Reviews project-related requirement and relevance	Connects procurement with site needs
Purchase review	Purchase Manager	Conducts the subsequent purchase review	Supports commercial and procedural control
Senior approval	CMO	Reviews the purchase for approval	Adds a higher authorization checkpoint
Final approval	CEO	Provides final approval as applicable	Authorizes the purchase before release
PO release	Purchase Department	Releases the approved purchase order	Enables supplier confirmation and dispatch

Table III presents the observed approval workflow involves multiple internal stakeholders and provides a structured control mechanism before purchase orders are released. The sequence allows material, project, commercial, and management considerations to be reviewed. However, each additional approval stage also creates a point at which a purchase order may remain pending if information is incomplete or a reviewer is unavailable. A centralized approval-status record could help the Purchase Department identify the current approver, pending duration, and next required action. This would improve follow-up without removing existing authorization controls. The approval sequence shown should be checked against the company's current procedure before final submission, particularly where the route varies by purchase type or value.

TABLE IV. MATERIAL DELIVERY TRACKING AND SUPPLIER FOLLOW-UP

(This work is licensed under a Creative Commons Attribution 4.0 International License.)

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14, Issue 12, UCBO - 2026

Tracking stage			
	Activity / information monitored	***Stakeholders involved***	***Purpose***
PO release	Approved order communicated to supplier	Purchase Department, supplier	Initiates supplier fulfilment
Order confirmation	Supplier acceptance and expected dispatch date checked	Purchase Department, supplier	Establishes the expected schedule
Dispatch follow-up	Supplier contacted for dispatch status	Purchase Department, supplier	Identifies pending dispatches
Transport information	Lorry receipt (LR) and transport details collected when available	Supplier, logistics, Purchase Department	Supports shipment tracking
Expected delivery	Expected arrival date compared with progress updates	Purchase Department, logistics, site team	Helps identify possible delays
Delay follow-up	Supplier contacted and relevant stakeholders informed	Purchase Department, supplier, site team	Supports timely escalation
Material receipt	Delivered material checked at the receiving location	Stores / site team, Purchase Department	Confirms physical arrival
GRN and documentation	Goods Receipt Note (GRN) and supporting records completed	Stores, Purchase Department, finance	Supports inventory and invoice processing

Table IV presents delivery tracking connects the purchase order with the physical receipt of materials at the required location. Supplier confirmation provides an initial delivery expectation, while dispatch details and transport information support follow-up after the material leaves the supplier. Comparing the expected delivery date with subsequent updates can help identify orders requiring attention. When delays occur, communication between suppliers, the Purchase Department, and site teams is important because the effect of a delay depends on the material's project requirement. After receipt, documentation and GRN completion provide evidence that the material has arrived and support the subsequent invoice process. A consistent tracking record would make pending orders easier to monitor and improve the traceability of delivery-related decisions.

TABLE V. ROCUREMENT BOTTLENECKS AND SUGGESTED IMPROVEMENT MEASURES

Observed issue	Observed issue		
	Operational implication	***Suggested improvement***	***Expected benefit***
Material priority is visible in site-level Excel records but not consistently reflected in ERP material requests	Priority may be less visible during centralized review	Introduce a P1/P2/P3 priority field or equivalent indicator in ERP	Better visibility of critical requirements
Multiple approval stages	Orders may remain pending while awaiting review	Maintain approval status, pending owner, and follow-up date	Easier identification of pending approvals
Supplier confirmation requires follow-up	Dispatch expectations may remain unclear	Record confirmation status and expected dispatch date	Improved order-status visibility
Delivery updates may be held across separate communications	Site teams may not have a consistent view of delivery	Maintain a centralized delivery tracker	Better coordination between purchase and site teams
Quotation comparison involves several commercial factors	Decisions may be difficult to compare if information is incomplete	Use a standardized comparison sheet covering price, specifications, availability, and delivery	More consistent supplier evaluation
Supplier follow-ups depend on manual communication	Reminders may be missed during periods of high workload	Introduce scheduled reminders and follow-up dates	More systematic supplier communication
ERP and Excel records serve different monitoring needs	Information may require manual consolidation	Standardize essential fields and reporting formats	Easier review and reporting

(This work is licensed under a Creative Commons Attribution 4.0 International License.)

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14, Issue 12, UCBO - 2026

Observed issue	Observed issue		
	Operational implication	*Suggested improvement*	*Expected benefit*
Receipt and invoice documentation require coordination	Missing records may delay subsequent processing	Use a document checklist for receipt, GRN, and invoice processing	Better documentation completeness

Table V presents the process review indicates that procurement improvement opportunities are concentrated around visibility, coordination, and follow-up rather than a single purchasing activity. Material priority, approval status, supplier confirmation, and delivery information need to be accessible to the employees responsible for the next action. Where records are maintained in different systems or files, reviewing the overall status may require additional coordination. Standardized tracking formats and clear responsibility assignments can make this information easier to review. ERP-based priority indicators and automated reminders are proposed improvements, not changes confirmed as implemented during the OJT. Their suitability should be assessed with the relevant company stakeholders before adoption.

TABLE VI. PROPOSED PROCUREMENT PERFORMANCE INDICATORS

Performance indicator	Performance indicator		
	Measurement approach	*Data source*	*Purpose*
Supplier response time	Time between RFQ communication and supplier response	RFQ and email records	Reviews supplier responsiveness
Approval turnaround time	Time between submission for approval and approval completion	ERP / approval records	Identifies approval-stage delays
Purchase order processing time	Time between verified requirement and PO release	Requirement and PO records	Reviews purchasing-cycle duration
Supplier delivery lead time	Time between PO release and material delivery	PO and receipt records	Assesses delivery performance
On-time delivery rate	On-time deliveries divided by total deliveries with recorded due dates, multiplied by 100	PO and delivery tracker	Measures delivery reliability
Overdue purchase orders	Number of orders delivered after the committed date or still pending beyond it	PO and delivery records	Identifies orders requiring follow-up
Quotation comparison coverage	Purchase cases with documented comparison divided by applicable cases, multiplied by 100	Quotation comparison sheets	Reviews consistency of supplier evaluation
Documentation discrepancy rate	Receipts or invoices with discrepancies divided by total cases reviewed, multiplied by 100	GRN and invoice records	Identifies documentation issues

Table VI presents the proposed indicators provide a structured way to evaluate procurement activities across supplier communication, approval processing, purchase order preparation, delivery, and documentation. Measuring supplier response time and approval turnaround time can help distinguish external supplier delays from internal processing delays. Delivery lead time and on-time delivery rate can support a more systematic review of supplier performance. Quotation comparison coverage and documentation discrepancy rate can help assess process consistency and record quality. These indicators should be calculated from verified ERP, Excel, PO, and receipt records over a defined period. Since the current analysis does not establish complete numerical results for every indicator, the table presents a measurement framework rather than confirmed performance outcomes.

V. FINDINGS, CONCLUSIONS AND SUGGESSIONS

A. *Findings*

The OJT study at Powercon Ventures Private Limited highlights the importance of procurement coordination in supporting wind-energy installation, operations, and maintenance activities. The Purchase Department handles material requirements received from multiple project locations and coordinates requirement verification, quotation collection, supplier evaluation, purchase order processing, and delivery follow-up. The study period involved processing approximately 15 to 20 material requirements weekly, supported by ERP

(This work is licensed under a Creative Commons Attribution 4.0 International License.)

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14, Issue 12, UCBO - 2026

records, Excel files, and communication with internal stakeholders and suppliers. The observations identify several areas requiring attention, including material-priority visibility, approval monitoring, supplier confirmation, and delivery-status tracking. Priority classifications maintained in site-level Excel records are not consistently visible in ERP material requests, creating an opportunity for better system integration. The study also identifies scope for standardized tracking records, automated reminders, and clearer ownership of pending actions. These findings indicate that improving information visibility and communication can support more systematic procurement control.

B. Conclusions

The study of the Procure-to-Pay process at Powercon Ventures Private Limited demonstrates that procurement efficiency depends on coordination across material planning, supplier communication, purchase order approvals, delivery tracking, and receipt documentation. The existing process provides a structured sequence for purchasing materials required by wind-energy project sites. However, the effectiveness of this sequence also depends on timely information exchange and visibility of pending activities. Manual follow-ups, approval-stage monitoring, and differences between ERP and site-level records present opportunities for process improvement. A centralized delivery tracker, clearly recorded supplier commitments, and visible material-priority indicators could help the Purchase Department monitor requirements more consistently. The proposed performance indicators would also support evidence-based review of supplier responsiveness, approval time, and delivery reliability. Since the study is based on OJT observations and available records, further measurement using complete historical data is required before quantifying improvements. Overall, systematic coordination and improved information visibility can strengthen procurement planning and support continuity across project sites.

C. Suggestions

a) For Management: Review the existing approval workflow and define responsibility, escalation points, and expected review timelines for purchase orders requiring multiple approvals.

b) For the Purchase Department: Maintain a standardized supplier follow-up tracker covering RFQ status, negotiated rates, PO confirmation, committed dispatch dates, delivery status, and pending actions.

c) For ERP and Digital Monitoring: Evaluate the feasibility of adding P1/P2/P3 material-priority indicators, approval-status visibility, and automated reminders for pending RFQs, approvals, and supplier commitments.

d) For Site, Stores, and Finance Coordination: Establish consistent communication and documentation checkpoints for expected deliveries, physical receipt, GRN completion, and invoice processing.

D. Implications

This study provides practical implications for procurement management, project teams, suppliers, and other stakeholders involved in Powercon Ventures' wind-energy operations. For management, the process review provides a basis for examining approval visibility, accountability, and procurement monitoring without compromising existing authorization controls. For the Purchase Department, standardized records of quotations, negotiated terms, supplier confirmations, and expected delivery dates can improve the visibility of pending actions. Project managers and site teams may benefit from clearer information about material priorities and expected arrivals, helping them coordinate project requirements with purchasing activities. Stores and finance personnel can benefit from consistent receipt and documentation checkpoints that support GRN completion and invoice processing. At the systems level, the findings provide a basis for evaluating ERP improvements, including material-priority indicators and automated reminders. The proposed performance indicators can also support periodic reviews using verified operational records. These implications are intended to guide evaluation and future improvement; their actual benefits would need to be assessed after implementation and measurement.

ACKNOWLEDGMENT

I express my sincere gratitude to the management and Purchase Department team at Powercon Ventures Private Limited, Pune, for their invaluable support, guidance, and permission to conduct this on-the-job training study. I am also deeply thankful to the faculty at Indira University, Pune, for their constant academic mentorship, encouragement, and guidance throughout this research project.

REFERENCES

[1] Albinkhalil, A. M., & Razzaque, A. (2021). E-procurement significantly affects supply chain performance. Semantic Scholar. https://www.semanticscholar.org/paper/b603cc98cded27d5bb6bf00b2be43d62179ee983

[2] Alexandre, G., Silva, A., Lezana, Á., & Maldonado, M. (2017). Reducing lead times in the supplier relationship management process: A process-centric approach. Semantic Scholar. https://www.semanticscholar.org/paper/a28187a4cb8dde10d0cf07f01e1d0bf5619a091d

[3] Hader, M., Mhamedi, A., Tchoffa, D., Ghodous, P., Abouabdellah, A., & Essaoudi, M. (2022). Optimisation of procure to pay process through blockchain technology: Case of textile sector. Semantic Scholar. https://www.semanticscholar.org/paper/65a30a00e2958e2733528a4c1880ca9420a845ec

[4] Hallikas, J., Korpela, K., Vilko, J., & Multaharju, S. (2019). Assessing benefits of information process integration in supply chains. ScienceDirect. https://www.sciencedirect.com/science/article/pii/S2351978920303589/pdf

[5] Issah, O., Yeboah, H. O., Agboyi, R. M., Baah, S. A., & Ofori, A. (2025). Procurement process optimization and firm supply chain performance: The mediating effect of information technology integration. *CARI Journals*. https://carijournals.org/journals/index.php/IJECOP/article/download/2516/2936

[6] Jayaram, J., & Vickery, S. (1998). Supply-based strategies, human resource initiatives, procurement leadtime, and firm performance. Deep Blue. https://hdl.handle.net/2027.42/98393

[7] Kusumba, S. (2025). Integrated order and invoice tracking: Optimizing supply chain visibility and financial operations. *JICR*. https://jicrcr.com/index.php/jicrcr/article/download/3405/2896

[8] Li, X., Olorunniwo, F., Fan, C., & Jolayemi, J. (2016). Improving performance in supplier relationship management with lower-tier supplier visibility and management. Semantic Scholar. https://www.semanticscholar.org/paper/a0dd351cea3180f705b3f53bdc6c45bc1e852894

[9] Lin, Y., Yu, P., & Lin, C. (2008). Assessing the applicability of collaborative procurement systems. Semantic Scholar. https://www.semanticscholar.org/paper/216dc540f34cc88914aefaed0812473bc9a18767

[10] Martínez-Martínez, J. G. (2008). Effective ERP and supplier coordination for procurement performance: A cross-national study. Semantic Scholar.

(This work is licensed under a Creative Commons Attribution 4.0 International License.)

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14, Issue 12, UCBO - 2026

https://www.semanticscholar.org/paper/e71a8059617f23b4d20706d9bbeb35d59d9dc310

[11] Mirnourollahi, S. M., & Rabbani, M. (2022). Coordination in the supply chain considering total lead times and delivery times. *Scientia Iranica*. http://scientiairanica.sharif.edu/article_22834_d46a4d5367c0860eb6f9484a6f7c2b66.pdf

[12] Mogere, K. M., & Otuyah, W. (2020). Leveraging procurement performance through effective supplier relationship management: A critical review of literature. *Strategic Journals*. https://strategicjournals.com/index.php/journal/article/download/1888/1807

[13] Momiwand, A., & Shahin, A. (2012). Lead time improvement by supplier relationship management with a case study in Pompaj Company. Semantic Scholar. https://www.semanticscholar.org/paper/bf2f7a85d7fe52cac8f720524ad088f2168d74c4

[14] Muchiri, S. W., & Moronge, M. (2019). Influence of procurement system integration on supply chain performance in Kenya's state corporations. *Strategic Journals*. https://strategicjournals.com/index.php/journal/article/download/1392/1351

[15] Narayanam, K., Goel, S., Singh, A., Shrinivasan, Y., & Selvam, P. (2021). Blockchain based accounts payable platform for goods trade. *arXiv*. https://arxiv.org/pdf/2103.02979

[16] Olaore, R. A., & Adebisi, N. (2013). Accounting, purchasing and supply chain management interface. https://doi.org/10.9790/487x-1128084

[17] Thakkar, P., & Lad, M. (2026). Multi-agent reinforcement learning for autonomous procure-to-pay (P2P) optimization. Semantic Scholar. https://www.semanticscholar.org/paper/4fc913567

(This work is licensed under a Creative Commons Attribution 4.0 International License.)