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Enhancing Procurement Performance Through Process Standardization, ERP Integration and AI-Assisted Purchase-Order Validation

A process-based study informed by On-the-Job Training at Emerson

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ABSTRACT - Procurement performance depends on more than the speed of creating a purchase order. It requires accurate demand information, disciplined approval, correct supplier and commercial data, supplier confirmation, delivery date control and timely exception resolution. This paper develops a process-improvement framework from the author's On-the-Job Training (OJT) experience as a Tactical Purchase Intern at Emerson. The documented OJT covered Oracle purchasing functions, the Purchase Requisition-to-Purchase Order (PR-to-PO) workflow, purchasing roles, supplier coordination, and purchase-order cancellation and rescheduling. A practical project area involved checking supplier order-acceptance documents in PDF format against purchase-order information recorded in the ERP system.

The paper proposes a three-layer improvement model: (1) standardize the procurement process and decision rules; (2) use ERP workflow, data validation and dashboards to establish a reliable system of record; and (3) introduce AI-assisted document extraction, matching and exception prioritization with human approval for material or commercial decisions. It also explains the buyer's operational role and proposes a KPI framework for purchase-order accuracy, confirmation turnaround, supplier follow-up, and RDSL/PDSL delivery adherence. Because the OJT report does not include an audited transaction dataset, error-rate charts and KPI values are explicitly illustrative scenarios, not measured Emerson results. The paper concludes that a controlled pilot, baseline measurement and governance are necessary before claiming savings or performance improvements.

Keywords: procurement, purchasing, PR-to-PO, ERP, Oracle, artificial intelligence, supplier confirmation, purchase order accuracy, RDSL, PDSL, delivery performance.

I. INTRODUCTION

1.1 Background

Procurement connects an organization's internal demand with suppliers and the wider supply chain. In industrial automation and flow-control environments, purchasing can influence material availability, production continuity, customer commitments, inventory and logistics cost. The PR-to-PO workflow is a critical control point because it converts a recognized requirement into an authorized supplier-facing commitment.

The author's OJT at Emerson began on 6 July 2026 in the Tactical Purchase Intern role. The learning sequence included Oracle navigation, purchase-role understanding, PR-to-PO processing, case-based practice, and order cancellation and rescheduling. The functional context included purchasing activities related to ISV valves for the German plant and coordination across global operations. This experience highlighted that process quality depends on correct data, role clarity, consistent checks and follow-up after PO creation.

1.2 Problem Statement

When purchasing work is performed through inconsistent steps, informal knowledge, manual re-keying or fragmented follow-ups, the process becomes vulnerable to duplicate orders, incorrect quantities, mismatched prices, date-format errors, missing confirmations, late escalation and avoidable rework. ERP software provides transaction structure but cannot independently determine whether every input is commercially or operationally correct. The research problem is therefore: how can a standardized PR-to-PO process, supported by ERP controls and AI-assisted validation, reduce preventable errors and improve supplier delivery performance without removing necessary human accountability?

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1.3 Aim and Objectives

• **PR-to-PO Execution:** To execute the Purchase Requisition to Purchase Order process while ensuring accurate and timely processing of purchase transactions.

• **Oracle Operations:** To practically use Oracle purchasing functions for processing requisitions, creating purchase orders and supporting procurement activities.

• **Tactical Purchasing:** To Manage tactical purchasing activities related to ISV valves for the German plant and support supply coordination across global operations.

• **PO Change Management:** To manage CRM like purchase-order changes, including cancellations and rescheduling, while supporting continuity of material supply.

1.4 Research questions

- **RQ1.** How does a purchase requirement move through the PR-to-PO workflow, and which controls and hand-offs give the workflow its reliability?
- **RQ2.** What is the relationship between enterprise-system (ERP) proficiency and process understanding in tactical purchasing?
- **RQ3.** How should post-order changes, specifically cancellation and rescheduling, be understood as exception management?
- **RQ4.** How can an AI-integrated ERP and a re-sequenced daily routine improve the efficiency of tactical purchasing at a fulfilment centre, and what learning mechanisms support new staff?

1.5 Contribution

The paper makes three contributions. It documents the PR-to-PO workflow as a nine-step control sequence grounded in practice. It shows empirically, within the limits of a single case, that ERP automation and human verification are complements rather than substitutes. It proposes a staged learning framework and a human-in-the-loop verification model that practitioners and training designers can adapt.

The remainder of the paper reviews the literature (Section 2), describes the research context (Section 3) and method (Section 4), presents findings (Section 5), discusses them against theory (Section 6), sets out implications (Section 7), acknowledges limitations and future research (Section 8) and concludes (Section 9).

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

The study sits at the intersection of purchasing-process research, enterprise-systems research and exception management. Each stream supplies a lens for one or more of the research questions.

2.1 Procurement, purchasing and tactical purchasing

Procurement is the broader organizational process of acquiring and managing the inputs an organization needs. Purchasing is its operational component, covering the execution and administration of buying transactions. Tactical purchasing concentrates on that execution layer, whereas strategic procurement addresses sourcing strategy and supplier selection.

- The distinction echoes the portfolio logic of Kraljic (1983), who argued that purchasing must be managed differently according to supply risk and profit impact, and it explains why transaction-level discipline can matter even where strategic decisions have already been taken.
- Chicks and et al. (2012) show that purchasing and supply chain management research draws on several theoretical perspectives rather than a single paradigm. This supports

the multidisciplinary framing used here, which combines process management, internal control and information-systems thinking.

2.2 Purchasing process models

Purchasing process models describe purchasing as a sequence of decisions and activities rather than a single event. Bäckstrand et al. (2019) review such models and show how they give structure to teaching and understanding purchasing and supply management. Doxey (2021) describes the electronic purchasing cycle as requisition, approval and workflow, purchase-order delivery, receiving and reconciliation. These stages provide the conceptual skeleton against which the PR-to-PO observations in this paper are mapped.

3. RESEARCH CONTEXT

3.1 The sector

The case sits in industrial automation and flow control, a sector serving process, hybrid and discrete industries such as oil and gas, chemicals, power, water, pharmaceuticals and manufacturing. Valves are often mission-critical: failure can cause shutdowns, leakage or safety incidents, so customers weigh reliability, certification and lifecycle cost heavily.

2.3 Enterprise systems and process visibility

Enterprise systems record, route and control business transactions according to assigned roles and permissions. Davenport (1998) cautioned that enterprise systems embed a particular organizational logic and that their benefits depend on how well people and processes align with that logic. Applied to purchasing, this implies that software proficiency without process knowledge is insufficient: a user who understands the interface but not the business meaning of a transaction cannot judge whether the data entered is valid.

2.4 Exception management

Non-routine situations such as cancellations, delivery slippage and demand changes call for controlled handling. A conceptual sequence is to identify the change, understand the current status of the transaction, apply the authorized action, communicate to the affected parties and maintain a record. Process visibility supports this sequence because the user can see the status of an order before acting on it.

2.5 Analytical Framework

Table 1 summarises the concepts used and how each is applied to the case.

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Concept	Core Logic	Application in This Study
Process Management	Work is a sequence of linked activities with inputs, controls, outputs and owners.	Mapping the PR-to-PO and order-change flows.
Internal Control	Transactions follow defined authority, information and traceability.	Role understanding, approval checks, system discipline.
Enterprise Systems	Integrated systems structure and record transactions.	Oracle-based purchasing as the system context.
Lead-Time Management	Time between requirement and execution shapes responsiveness.	Timely processing and date verification.
Exception Management	Non-routine events require controlled handling.	Cancellation and rescheduling.
Cross-Functional Coordination	Processes depend on hand-offs across functions.	Links with sales, finance, sourcing, suppliers and logistics.

Industry estimates cited in the OJT report put the global industrial valve market at about US$101.9 billion in 2025, growing at roughly 5.2% a year to 2032, and India's market at about US$1.56 billion, growing at roughly 7% a year to 2031. Because these figures come from commercial market-research providers with differing definitions, they are used here only to indicate scale.

The sector is moving from standalone mechanical devices towards connected, software-enabled assets. For purchasing, this raises the importance of accurate specifications, dependable lead times and supply resilience.

Table: Global and Indian Industrial Valve Market Overview and Company Performance

Indicator	Value	Source Type
Global industrial valve market, 2025	US$101.94 billion	Market-research report
Global forecast, 2032	US$147.19 billion (5.2% CAGR)	Market-research report
India industrial valve market, 2025	US$1.56 billion	Market-research report
India forecast, 2031	US$2.34 billion (6.96% CAGR)	Market-research report
Firm's share of global control-valve market, 2025	Approx. 21.2% (top five suppliers approx. 51%)	Industry estimate
Firm's net sales, FY2025	Approx. US$18.0 billion	Annual report
Final-control sales, FY2025	Approx. US$4.38 billion (+4% year on year)	Annual report

The firm and the function

The firm is a US-headquartered, NYSE-listed industrial technology company with a long history in automation, measurement, final control and industrial software. The functions most relevant to this study are its final-control (valve) and measurement businesses. The placement was in tactical purchasing, supporting a company fulfilment centre in Germany and coordinating supply across global operations. The site is a fulfilment centre, not a manufacturing plant: it does not produce what it ships, so product availability, and therefore customer service, depends almost entirely on timely and accurate purchasing. In this function the buyer works with manufacturing, sales, finance, sourcing, logistics and external suppliers.

4. OBJECTIVES

Objective 1 To execute the Purchase Requisition to Purchase Order process while ensuring accurate and timely processing of purchase transactions.

Objective 2 To practically use Oracle purchasing functions for processing requisitions, creating purchase orders and supporting procurement activities.

Objective 3 To Manage tactical purchasing activities related to ISV valves for the German plant and support supply coordination across global operations.

Objective 4 To manage CRM like purchase-order changes, including cancellations and rescheduling, while supporting continuity of material supply.

5. FINDINGS

5.1 The PR-to-PO workflow is a nine-step control sequence (RQ1)

The workflow converts an internal requirement into a formal supplier commitment. Observation of the process yields the following sequence.

- Requisition generation. A demand-side team (at the fulfilment centre, typically replenishment or sales demand; at manufacturing sites, production) raises a purchase requisition (PR) stating material, quantity, required date and specifications.
- Requirement verification. Purchasing checks that the requirement is genuine by reviewing stock, existing and open orders, and previous requirements.
- Demand and stock analysis. The buyer establishes whether the material is available, already ordered, partly available or truly needed, which prevents duplicate purchases and excess inventory.

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- Supplier and price verification. The allocated or appropriate supplier is confirmed, and quantity, delivery requirement, commercial terms and shipment method are reviewed.
- Finance and approval check. The requirement passes the applicable internal approval, giving financial control before commitment.
- Delivery-date verification. The required date is compared with the supplier's committed date. If they differ, the buyer negotiates an alternative date or logistics arrangement.
- Supplier acceptance. The supplier's confirmation is checked for PO reference, quantity, price, date, shipment details and terms.
- Purchase order creation. After checks and approvals, the PO is created and released as the formal purchasing document.
- Post-PO follow-up. The buyer monitors supplier response, shipment, date changes, rescheduling and cancellation until receipt and billing

Three features stand out. The first four steps are verification steps, not data entry: most of the control value is created before the PO exists. Steps 5 and 6 add two independent checks, financial authority and date feasibility. Step 9 shows that the process does not end at PO release. The workflow therefore functions as a bridge. Errors in requisition information (a wrong quantity, a missing specification, an unrealistic date) carry forward and become supplier-facing errors unless caught at steps 2 to 6.

5.2 To develop practical familiarity with Oracle purchasing functions and analyse their role in supporting structured purchasing processes. Oracle ERP provides a structured environment for recording, processing and monitoring purchasing transactions. Practical exposure helped develop familiarity with how purchasing information is maintained and controlled.

Role of Oracle in Purchasing

Purchase requisition processing | Purchase order creation | Supplier and PO information | Quantity and price recording | Delivery-date information | Order-status monitoring | PO changes

Purchasing documentation and transaction records

A key learning was that ERP automation does not eliminate human verification. If quantity, price, delivery date, supplier, currency, unit of measurement or reference data is wrong, the system can still process the incorrect information correctly from a technical perspective.

Therefore: ERP automation + Human verification = Reliable purchasing process

Supplier Confirmation and Data Verification

Supplier confirmations may be received as PDF documents containing order acceptance, PO reference, material details, quantity, price, currency, delivery dates and shipment information. The purchasing officer compares these details with the information recorded in Oracle.

Data Validation Process

Supplier PDF → Extract Information → Compare with Oracle → Identify Differences → Verify with Supplier/Internal Team → Correct Data → Confirm PO

Objective 2 – Learning Outcome

The internship developed practical familiarity with Oracle purchasing functions and demonstrated the importance of data accuracy, transaction control and human validation in ERP-supported procurement. Key learning: Automation can reduce repetitive work, but it cannot completely replace human responsibility for verifying the accuracy and business validity of purchasing information.

5.3 Standardized the role, responsibilities, and operational activities associated with tactical purchasing

The internship showed that a tactical purchasing officer does much more than place purchase orders. The officer coordinates demand, inventory, sales, finance, sourcing, suppliers, logistics and customer requirements to ensure material availability at the right time and under appropriate commercial conditions.

Key Activities Observed and Understood

1. Demand Verification and Stock Analysis

The purchasing officer verifies whether a requirement raised by manufacturing or sales is genuine. Stock, existing orders, open orders, previous requirements, quantity and bulk-order possibilities are checked to avoid duplicate or unnecessary purchasing.

2. Coordination with Sales Team

Purchasing coordinates with sales regarding customer requirements, quantity, delivery dates, urgent orders and changes in demand.

3. Coordination with Finance

Purchasing coordinates with finance regarding price, purchase value, approvals, budgets, commercial terms and billing-related information.

4. Coordination with Sourcing Team

The sourcing function helps identify suitable vendors. Purchasing verifies vendor allocation based on capability, price, availability, supplier performance, delivery capability, commercial terms and quality requirements.

5. Supplier Negotiation and Coordination

The purchasing officer communicates with suppliers regarding price, quantity, delivery dates, shipment methods, transportation, availability, order acceptance and changes.

6. Delivery and Shipment Coordination

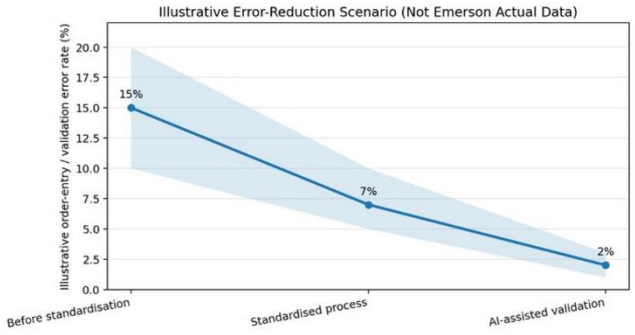
After PO placement, purchasing follows up on confirmed delivery dates, shipment status, delays, transportation and urgent shipments, while coordinating with logistics.

7. Customer Relationship / CRM Coordination

Purchasing can indirectly affect customer satisfaction because material delays can delay customer orders. Customer-facing and CRM-related coordination is therefore important when purchasing issues affect commitments.

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5.4 ERP automation does not remove the need for human verification

A central practical finding is that the system can process incorrect data perfectly. If quantity, price, currency, unit of measure, supplier or delivery date is wrong, the transaction still completes technically. Reliability therefore comes from combining automation with human validation: ERP automation + human verification = reliable purchasing process This was most visible in supplier order-acceptance documents, usually received as PDFs. The buyer extracts the stated PO reference, quantity, price, currency and dates and compares them with the system record. Formats complicate this: the same date may appear as DD/MM/YYYY, MM/DD/YYYY or DD-MMM-YYYY, and prices may differ in presentation by supplier, currency or system. A misread date format is a plausible source of a mistaken delivery commitment. The new technique used AI capability integrated with the ERP software. Two functions mattered. The tool converts supplier PDFs into spreadsheets, and it can read a PDF and post the data directly into the ERP record. Date and currency variations are normalised on the way in, which removes most manual retyping. Human verification remains in place for mismatches and exceptions, consistent with the model in Section.

6. IMPLICATIONS AND RECOMMENDATIONS (RQ4)

The recommendations below are academic suggestions derived from qualitative findings. They do not claim that any organisation lacks these practices, and they should be validated against internal policy before use.

6.1 A staged learning framework for tactical purchasing

The main recommendation is a structured learning path that mirrors the dependency order observed:

- System orientation. Approved Oracle navigation and terminology relevant to the learner's role.
- Role and responsibility mapping. Business purpose and boundaries before deep transaction training.
- Core process map. The PR-to-PO workflow as an approved, high-level map showing inputs, hand-offs, controls and outputs.
- Guided cases. Supervised practice on approved cases.
- Exception handling. Cancellation and rescheduling, introduced once the normal process is understood.
- Feedback and update. Periodic review of the sequence using learner feedback.

Supporting aids include a concise role-based playbook, knowledge checkpoints after navigation, role mapping and case exposure, and an exception-learning matrix. Training material should exclude supplier-sensitive and commercially restricted information.

6.2 A human-in-the-loop model for supplier-confirmation checks.

Supplier confirmations arrive in varied formats and are verified by comparison with the system record. The study proposes the following verification sequence:

- Receive the supplier confirmation PDF and identify the PO number.
- Check the supplier, then verify material and quantity.
- Verify price and currency.
- Verify the delivery date, normalising date format.
- Compare with the ERP record and identify mismatches.
- Apply human verification to each mismatch.
- Correct or clarify with the supplier or internal team.
- Record final confirmation of the PO.

AI and automation tools can support the first five steps but should not replace the last three.

Table: Role of Automation and Buyer Responsibilities in Procurement

Automation Can Assist With	The Buyer Remains Responsible For
Reading supplier PDFs	Validating extracted information
Extracting dates, prices, and PO numbers	Understanding business context
Standardizing date formats	Checking that the requirement is genuine
Highlighting mismatches and unusual values	Checking commercial conditions
Automating repetitive comparisons	Resolving discrepancies and communicating with suppliers
—	Final confirmation and approval

The recommended model is therefore: AI-assisted extraction, automated comparison, human verification, then final confirmation, rather than fully automatic PO confirmation.

6.3 Change visibility

Where permitted, organisations could track non-confidential categories of recurring order changes. Aggregated categories could give management learning about root causes without exposing transaction detail.

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8. LIMITATIONS AND FUTURE RESEARCH

8.1 Limitations

- Single case, single observer. Findings rest on one placement and one participant-observer, so they are analytically transferable, not statistically generalizable.
- Qualitative evidence. There is no statistical testing, transaction-level analysis or validated cost-saving estimate.
- Confidentiality. Supplier, pricing and transaction data were unavailable, so performance is reported only as percentages.
- Short observation window. The documented period is brief; longer exposure could reveal further process variation.
- Functional scope. The study covers tactical purchasing, not strategic sourcing or the wider procurement organization
- Untested recommendations. The proposed framework and verification model have not been piloted.

8.2 Future research

- Study anonymized PR-to-PO cycle-time data, subject to organizational approval.
- Classify purchase-order changes by category and root cause.
- Pilot and evaluate the human-in-the-loop verification model, measuring mismatch detection and rework.
- Compare onboarding methods across purchasing workstreams, including the staged framework.
- Conduct multi-case or interview-based studies across firms and sectors to test transferability.

9. CONCLUSION

This paper studied tactical purchasing through the PR-to-PO workflow and post-order change management in an industrial automation firm. It found that the workflow is a control bridge from internal demand to supplier commitment, that system fluency and process understanding must grow together, that ERP automation must be paired with human verification, and that cancellation and rescheduling are routine exception management. At the study site, replacing manual handling of supplier documents with an AI-integrated ERP, and following a fixed daily sequence (previous day's cancellations, priority orders, forecast, order acknowledgements, shipment updates), was associated with higher purchasing efficiency, shown by a delivery-date KPI that rose from 80% to 87% against an 85% target. These findings support three practical proposals: the re-sequenced daily routine, a staged learning framework for new purchasing staff, and an AI-assisted but human-verified model for checking supplier confirmations. The contribution is a grounded, process-level account of a function that is critical to supply continuity but seldom examined. Its conclusions are bounded by a single case and by percentage-only reporting, so they indicate association, not proven causation. Further research with approved data and multiple cases can test whether the proposed mechanisms improve accuracy, cycle time and onboarding.

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