International Journal of Creative and Open Research in Engineering and Management
ISSN: 3108-1754 (Online)
Volume 02 Issue 11 November-2026 | Impact Factor: 3.5



Strengthening Accounts Payable Efficiency in a Chemical Manufacturing Company: A Process-Based Study

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How to Cite this Article:

Tandel, U. (2026). Strengthening Accounts Payable Efficiency in a Chemical Manufacturing Company: A Process-Based Study. International Journal of Creative and Open Research in Engineering and Management, 02(11), 1-9. https://doi.org/10.55041/ijcope.v2i10.230

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https://doi.org/10.55041/ijcope.v2i10.230

Abstract

Accounts payable (AP) is often treated as routine bookkeeping, yet it sits at the point where procurement, stores, finance and suppliers meet, and it directly shapes cash outflows, supplier trust and the reliability of financial records. This paper reports a process-based study of the AP function at Atul Ltd., a diversified Indian chemical manufacturer, carried out during a three-month on-the-job training (OJT) from May to August 2026. Using process observation, discussions with finance staff and the records made available to an intern, the study maps the AP cycle from purchase requirement to vendor reconciliation, identifies recurring sources of delay and error, and examines two illustrative cases, one on three-way matching and one on duplicate-invoice detection. The main bottlenecks were incomplete or incorrect invoice documents, mismatches between invoices and supporting records, slow approvals, manual data entry and unresolved reconciliation differences. The paper proposes a compact set of AP performance indicators and seven practical recommendations: a standard verification checklist, defined approval timelines, stronger three-way matching, regular vendor reconciliation, a tracking dashboard, selective automation and KPI monitoring. Confidential company data were not used, and no before-and-after measurement was possible within the internship period. The findings therefore describe how the process works and where it can be improved; they do not quantify the size of the gains.

Keywords: accounts payable; process efficiency; three-way matching; internal control; vendor reconciliation; working capital; chemical industry; India
JELclassification:M41,G30,L6

1. Introduction

Every manufacturing company buys on credit, and every credit purchase eventually becomes a payment. Between those two events lies a chain of small tasks: checking that the goods or services were received, confirming that the invoice is correct, obtaining approval, recording the liability and paying on the agreed date. When this chain works well, nobody notices it. When it does not, the effects spread quickly: suppliers are paid late, duplicate payments slip through, month-end closing is delayed and the cash forecast becomes unreliable.

This matters more for a chemical manufacturer than for many other businesses. The Indian chemical industry is large and varied, with an estimated market of about US$250 billion in 2024, a contribution of roughly 7% to national GDP and more than 80,000 commercial products. Companies in this sector depend on many raw-material, energy and service suppliers, and the sector faces volatile input prices and strict compliance requirements . A company with a large and varied supplier base needs a payables process that is accurate, fast and well controlled.



Atul Ltd., part of the Lalbhai Group, is one example. Its FY2024–25 annual report describes about 900 products and 400 formulations serving 30 industries in 88 countries, and it reports
₹26 crore in savings from process-efficiency improvements during the year. Process efficiency is clearly a stated organisational concern. This paper asks a narrower question about one finance process: how does the AP cycle operate in such a setting, where does it lose time or accuracy, and what practical changes would improve it?

The study draws on the author's OJT in the finance function at Atul Ltd. It is a descriptive, process-level study. Because supplier names, invoice values and payment data are confidential, the paper concentrates on workflow, controls and performance indicators rather than internal figures. The rest of the paper is organised as follows. Section 2 reviews the relevant literature, Section 3 gives the industry and company context, Section 4 states the objectives, Section 5 describes the method, Section 6 presents the findings, Section 7 discusses them, Section 8 gives recommendations, Section 9 lists limitations and future work, and Section 10 concludes.

2. Literature Review

2.1 Accounts payable and working capital

Financial management textbooks treat trade credit as a spontaneous source of short-term finance: a company that pays its suppliers later holds on to cash for longer.The same texts also stress that stretching payments has limits, because late payment can damage supplier relationships and may forfeit early-payment discounts. Payment timing is therefore a managed decision and not simply a matter of paying whenever the paperwork is ready.

The cash conversion cycle gives this idea a measurable form. Richards and Laughlin proposed it as a way of analysing liquidity by combining the time taken to sell inventory, collect receivables and pay suppliers. Later empirical work has examined how these components relate to performance. Shin and Soenen found that a shorter net trading cycle was associated with higher profitability in a large sample of US firms, and Deloof reported that components of working capital, including the payables period, were related to profitability in Belgian firms. These studies do not say that firms should delay payments as long as possible. What they show is that payables are part of a larger working-capital system, and that the timing and reliability of payment have financial consequences. A payables process that is slow or unpredictable makes that system harder to manage.

2.2 Internal control in the payables process

The AP cycle moves money out of the company, so it is a natural place for control weaknesses to matter. The COSO Internal Control framework describes control as a set of components, including control activities such as authorisation, verification, reconciliation and segregation of duties. In AP practice these ideas appear as approval hierarchies, three-way matching of the purchase order, goods receipt and invoice, duplicate-invoice checks and periodic reconciliation of vendor statements. Each of these activities is a safeguard against a different risk, such as unauthorised spending, payment for goods not received, double payment or an incorrect liability in the books.

2.3 Process efficiency and lean thinking

Control alone does not make a process efficient. A process can be safe and still slow. Lean management, as set out by Womack and Jones, asks organisations to identify value from the customer's point of view, map the steps that deliver it, remove steps that add no value and keep work flowing. Applied to AP, this suggests looking at where invoices wait, where they are sent back for correction and where the same data are keyed more than once. These are the points where time is lost without improving control.

2.4 Research gap

The working-capital literature mostly studies payables at the level of the whole firm, using financial-statement ratios, while the control literature is framed in general terms. Less is available in an accessible form on how the day-to-day AP workflow of an Indian manufacturing company can be examined stage by stage, with controls and efficiency considered together. This paper offers a structured, practice-based



account of that kind, using a chemical manufacturer as the setting.

3. Industry and Company Context

The sector. India is the sixth-largest chemical producer in the world and the third-largest in Asia. The industry spans bulk chemicals, specialty chemicals, petrochemicals, polymers, agrochemicals, dyes and pigments and pharmaceutical intermediates. Competitive rivalry and buyer bargaining power are high, and supplier power is moderate to high because raw materials and energy are subject to price swings and supply disruption. In such an environment, procurement and vendor management carry real weight, and the payables process is the financial end of that relationship.

The company. Atul Ltd. was founded in 1947 and operates in two broad areas, Life Science Chemicals and Performance and Other Chemicals. Its product range includes aromatics, bulk chemicals and intermediates, colours, crop-protection products, pharmaceutical products and polymers. The company reported consolidated revenue from operations of ₹5,583 crore in FY2024–25, compared with ₹4,726 crore in FY2023–24. A business of this size and variety deals with a large number of suppliers and a steady flow of invoices, which is why the AP function was a suitable subject for study.

4. Research Objectives

The study set out to:

1. Describe the AP process at Atul Ltd. from purchase requirement to vendor reconciliation and the coordination it requires among finance, procurement, stores and vendors;
2. Identify the main bottlenecks, errors and control issues that affect the speed and accuracy of invoice processing;
3. Examine how invoice verification and duplicate detection work as controls, using illustrative cases; and
4. Propose indicators for monitoring AP efficiency and practical measures for improving it.

5. Methodology

5.1 Design

The study is a descriptive, process-based case study of a single organisation. This design suits a topic where the aim is to understand how a workflow runs and where it breaks down, rather than to test a statistical hypothesis. Process mapping and observation are common ways of studying workflows of this kind .

5.2 Data sources

Data came from three sources during the OJT period (26 May to 25 August 2026): direct observation of how invoices moved through the AP workflow, discussions with the finance and accounts team and the industry mentor, and the documents and records that were accessible to an intern. Secondary information on the industry and the company was taken from the India Brand Equity Foundation and the company's FY2024–25 annual report .

5.3 Analytical approach

The analysis had four parts. First, the AP cycle was mapped as a sequence of stages, with a flow chart for each major sub-process (invoice processing, verification, approval, payment and reconciliation). Second, each stage was reviewed for points where delay, error or weak control could arise. Third, two illustrative cases were prepared to show how verification controls work in practice. Fourth, a set of performance indicators was defined so that the process could be monitored in future. Working formats were also prepared to support this work: an invoice tracking format, a verification checklist, an approval tracking format, a payment tracking format, a vendor reconciliation format and a bottleneck identification format.

5.4 Indicators used in the framework

The following indicators are defined for use by the AP function. They are definitions only; no company values are reported in this paper.

- **Invoice processing time:** days from invoice receipt to completion of verification and accounting entry.
- **Approval cycle time:** days from submission for approval to approval decision.
- **Payment turnaround:** days from approval to payment, compared with the due date.



- **Exception rate:** invoices flagged with a mismatch or missing document, divided by total invoices processed.
- **Pending invoices:** invoices awaiting verification, approval or payment at a given date.
- **Days payable outstanding (DPO):** average accounts payable divided by cost of goods sold, multiplied by 365.

5.5 Ethical considerations

Supplier names, invoice numbers, bank details, employee information and commercially sensitive terms were not recorded for reproduction. Values in the two cases are labelled illustrative and do not come from company records.

6. Findings

6.1 The AP cycle as observed

The process studied runs in ten stages, from purchase requirement to performance monitoring. Table 1 summarises what each stage involves and why it matters for efficiency.

Stage	What happens	Why it matters
Purchase requirement and purchase order	The user department raises a requirement and a purchase order (PO) is issued to an approved supplier, stating price, quantity, delivery and payment terms	The PO is the reference against which everything later is checked
Receipt of goods or services	Stores or the receiving department confirm quantity, specification and agreement with the PO	Provides evidence that the goods or services were actually received
Invoice receipt and recording	The supplier invoice is received and entered in the ERP or accounting workflow	Missing or wrong information at this point creates later exceptions
Verification and matching	Invoice details are compared with the PO and the goods receipt	Detects quantity, price, tax and duplicate errors before payment
Approval	An authorised person or department approves the invoice	Ensures authorisation; delays here lengthen the whole cycle
Accounting entry	The approved invoice is recorded as a liability	Affects expense recognition, supplier balances and tax accounting
Payment processing	Payment is scheduled and authorised in line with due date, terms and available cash	Links AP to working-capital and supplier relationships
Vendor reconciliation	Company records are compared with supplier statements	Catches unrecorded invoices, credit and debit notes and timing differences
Monitoring	Pending items, exceptions and overdue payments are reviewed	Gives early warning of bottlenecks

Table 1. The accounts payable cycle at Atul Ltd. as studied. Source: Author's observation during OJT.

The cycle depends on handovers between departments. Procurement defines the commitment, stores confirm delivery, AP verifies and records, finance schedules payment and the supplier checks the outcome. A delay or error at one handover usually shows up later in a different place, which makes it difficult to trace without a process map.



6.2 Bottlenecks and their effects

Reviewing each stage showed a small number of recurring problem areas (Table 2).

Bottleneck	Typical cause	Effect on the process	Relevant control
Missing or incorrect invoice information	Incomplete supplier documents, wrong PO reference or tax details	Invoice is held or returned for correction	Standard verification checklist
Mismatch with PO or receipt	Quantity or price differences, delayed goods receipt entry	Exception handling and re-verification	Three-way matching with exception log
Bottleneck	**Typical cause**	**Effect on the process**	**Relevant control**
Approval delays	Unclear responsibility, no timeline, no follow-up	Longer invoice cycle, risk of late payment	Defined approval limits and timelines; pending-invoice tracking
Manual data entry	Repeated keying of invoice details	Errors and repetitive effort	ERP-supported capture and matching
Duplicate invoices	Same invoice submitted more than once	Risk of double payment and cash leakage	Automated duplicate check on supplier, invoice number, date and amount
Reconciliation differences	Timing gaps, unrecorded invoices, credit or debit notes	Inaccurate payable balances, supplier queries	Scheduled vendor reconciliation

Table 2. Main bottlenecks in the AP process. Source: Author's observation during OJT.

Of these, missing documents, invoice mismatches and approval delays were the ones most clearly tied to longer processing times. This is an observation about where exceptions arise, not a measured ranking; the internship did not allow exception counts to be recorded and published.

6.3 Illustrative case A: three-way matching

Consider a supplier who delivers 1,000 units of a raw material against an approved PO worth ₹8,50,000 and then submits an invoice for the same quantity and value. The AP team checks the basic invoice details (supplier, invoice number and date, PO reference, quantity, price and tax) and then compares the PO, the goods receipt note and the invoice. All three agree, so the invoice goes forward for approval and payment.

The case is simple, but it shows what the control achieves. Payment is made only for goods that were ordered and received. If the goods receipt showed fewer units than the invoice, the mismatch would stop the invoice and trigger clarification with the supplier or stores before any money left the company. The figures in this case are illustrative and are not company records.

6.4 Illustrative case B: duplicate invoice detection

In the second case, a supplier submits an invoice of ₹3,20,000 that carries the same invoice number and amount as one already recorded in the ERP system. On comparing supplier, invoice number, date and amount with existing records, the AP team identifies the second invoice as a duplicate and blocks it from payment.

The lesson is that duplicate payment is a real exposure in any high-volume AP function and is cheapest to prevent at the verification stage, before payment is released. Checking a combination of supplier code, invoice number, invoice date and amount is more reliable than checking any single field. The figures in this case are also illustrative.



6.5 An efficiency monitoring framework

From the stage review and the bottleneck analysis, a monitoring framework was developed that links each indicator to the stage it measures and the question it answers (Table 3).

Indicator	Stage measured	Question it answers
Invoice processing time	Receipt to accounting entry	How quickly are invoices verified and recorded?
Approval cycle time	Approval	Where do invoices wait for authorisation?
Payment turnaround	Payment	Are payments made by the due date?
Exception rate	Verification and matching	How often do documents or details fail to match?
Pending invoices	All stages	How large is the backlog, and where is it?
DPO	Payment and working capital	Is payment timing consistent with agreed terms and cash planning?

Table 3. AP monitoring framework. Source: Author's framework, using standard definitions .

7. Discussion

Three points stand out from the findings.

First, accounts payable is a connected process and should be managed as one. The problems recorded in Table 2 rarely begin in the AP team itself. A late goods receipt entry in stores produces a mismatch in AP, and an unclear purchase order produces a query from the supplier. This supports the view, drawn from lean thinking, that efficiency depends on how well work flows across functions and not only on how fast each function works .

Second, control and speed support each other more often than they conflict. A verification checklist and three-way matching are controls, yet they also reduce rework, because errors caught at the start do not return later as disputes or corrections. This is consistent with the control framework's view of verification and reconciliation as core control activities, and it suggests that tighter early checks can shorten the overall cycle even though they add a step at the front.

Third, payment timing links the AP function to the wider financial picture. The working-capital literature suggests that payables are one lever among several in managing liquidity . A process that makes payment dates predictable allows the finance function to plan cash with more confidence, and a process with frequent unresolved exceptions weakens that planning. This study did not measure payment timing at Atul Ltd., so it cannot say how well the company performs on this point. It can say that the monitoring framework in Table 3 would let the company find out.

The findings also fit the broader emphasis on efficiency that the company reports in its annual report . The AP function is one small part of that effort, and the stage-level approach used here could be applied to other finance processes.

8. Recommendations

The recommendations follow directly from the bottlenecks in Table 2.

Recommendation	Reason	Expected outcome
Use a standard verification checklist for every invoice (vendor details, invoice number, PO, quantity, price, taxes, supporting documents)	Documentation gaps and mismatches lengthen processing	Fewer errors and missing documents
Set clear approval responsibilities and timelines, and follow up on pending invoices	Approval delays lengthen the whole cycle	Shorter processing time



Recommendation	Reason	Expected outcome
Keep and strengthen three-way matching before payment	Prevents payment for goods not ordered or received	Better payment accuracy
Schedule regular vendor reconciliation	Early detection of differences stops them accumulating	Accurate payable balances
Use a simple AP tracking sheet or dashboard	Visibility of pending items, exceptions and overdue payments	Faster corrective action
Use existing ERP features or suitable tools for repetitive tasks such as data capture, status tracking and duplicate checks	Manual entry increases errors and effort	Higher productivity, fewer errors
Monitor the indicators in Table 3 periodically and compare over time	Allows improvement to be measured	Continuous improvement

Table 4. Recommendations. Source: Author's analysis.

Implementation can follow a simple sequence: map the existing process, introduce the checklist, define approval timelines, start the tracking sheet, schedule reconciliations, identify tasks suited to automation, train the staff involved and review the results after an agreed period.

9. Limitations and Future Work

The study has clear limits. It rests on one organisation and one function, so the findings should not be generalised to other companies without care. Access to financial and vendor data was restricted, which is normal for an intern, so no processing-time, error-rate or payment-turnaround figures could be reported. The internship period was too short to observe seasonal patterns or to compare performance before and after any change. The two cases are illustrative and the observations are partly based on discussions, which means some personal interpretation is unavoidable.

Future work can address these limits directly: (i) a quantitative analysis of processing and approval times over a longer period; (ii) a before-and-after comparison once improvements are introduced; (iii) a cost-benefit analysis of AP automation; (iv) a supplier survey on satisfaction with payment processes; and (v) benchmarking against comparable manufacturers.

10. Conclusion

This paper examined the accounts payable process of a diversified chemical manufacturer from the viewpoint of efficiency and control. The AP cycle was mapped in ten stages, the main bottlenecks were identified as incomplete documents, invoice mismatches, approval delays, manual entry, duplicate invoices and reconciliation differences, and two illustrative cases showed how three-way matching and duplicate detection protect against incorrect payment. A set of six indicators and seven recommendations was proposed for monitoring and improving the process.

The central message is that a good AP process is built from small, disciplined steps done consistently and in the right order. Accurate documents at the start, timely approvals in the middle and regular reconciliation at the end together give faster processing, stronger control and better supplier relations. Because the study is qualitative and limited to the period of an internship, the benefits suggested here remain to be measured. The framework offered is intended as a practical starting point for that measurement.

Declarations

1. **Data availability.** No confidential company data were used. Figures in the illustrative cases are assumed for demonstration. Industry and company figures are taken from the sources cited.
2. **Confidentiality.** Supplier names, invoice details, bank information and other restricted information



have not been reproduced.

3. **Conflict of interest.** The author to confirm: The author declares no conflict of interest.

Acknowledgement: The author thanks Prof. Maruti Prasad (School of Business, Indira University) for academic guidance, Mr Tejas Shah (Manager, Finance, Atul Ltd.) and the Accounts and Finance team for industry mentorship, and Atul Ltd. for the opportunity to undertake the OJT.

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