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Sales Transactions Of Reman Business At Pt United Tractors Tbk

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ABSTRACT

PT United Tractors Tbk, a subsidiary of PT Astra International, is Indonesia's largest distributor of construction machinery and heavy equipment, serving as the sole distributor for brands such as Komatsu, UD Trucks, Scania, Bomag, and Tadano. This internship provided valuable exposure to the transaction system of heavy equipment component sales, covering the process from order initiation to completion, commonly referred to as "done billing."All transactions at PT United Tractors are managed online through the SAP application, which enables real-time monitoring of order data and minimizes the risk of fraud. During this independent internship, the researcher gained practical knowledge of component sales systems, product promotion to potential customers, maintenance planning, and operational target setting for heavy equipment units.The internship was carried out in the Service Division, specifically the PSBD OBD Department, which manages Reman transactions, including sales of components such as engines, transmissions, axles, cylinders, pumps & motors, and Komatsu Certified Machine Rebuild (KCMR). This experience provided first-hand understanding of the Reman sales transaction system, offering essential insights and skills that will support future career development in the heavy equipment industry.

INTRODUCTION

PT United Tractors Tbk (UT) is a leading Indonesian company in heavy equipment distribution, mining contracting, and energy services. Within UT's service portfolio, remanufacturing (Reman) of major and midlife components—engines, transmissions, axles, cylinders, pumps, motors and Komatsu Certified Machine Rebuild (KCMR)—plays a strategic role in offering cost-efficient after-sales solutions and maintaining customer uptime. The PSBD OBD division oversees Reman transactions: intake of cores, coordination with vendors/principals,

quality validation, inventory control, dispatch and final billing. All operational transactions are recorded in SAP-based workflows to centralize monitoring and reduce transactional risk.

Despite an integrated ERP backbone, the internship-based examination documented recurring operational frictions that affect throughput and data integrity. These are summarized as: vendor difficulties in component preparation, delayed goods receipt (GR) processing, goods issue (GI) inconsistencies, distributor delivery mismatches, and incomplete "Done Billing" records—challenges that align with typical supply-chain friction points in remanufacturing contexts. This study analyses those issues in depth, links them to root causes, and proposes prioritized interventions. The empirical material for this study is derived from field notes, interview transcripts with operational staff and supervisors, SAP transaction logs and internal SOPs collected during the internship.

LITERATURE REVIEW

Remanufacturing and After-Sales Strategy

Remanufacturing is a closed-loop strategy that restores used components to a specified level of performance and reliability often comparable to new parts, thereby delivering cost and sustainability benefits (Rushton, Croucher & Baker, 2022). For OEMs and large distributors, Reman helps retain customers through service continuity and lower total cost of ownership. Reman operations impose particular supply-chain demands: reliable reverse logistics, core availability, precise tracing, and robust quality control (Chopra & Meindl, 2023).

ERP, Data Governance and Process Reliability

ERP systems such as SAP provide the technical backbone for integrated transaction recording, but reliable outputs require accurate master data and disciplined operational processes. Studies highlight that the value of ERP depends critically on human adherence to procedures and continuous synchronization of master-data across organizational units (Chopra & Meindl, 2023; Van Schilt et al., 2024). Bad data and delayed postings propagate errors across inventory, accounting and customer billing (Traxtech, 2023).

Vendor Management and Collaborative Planning

Collaborative Planning, Forecasting & Replenishment (CPFR) practices reduce upstream uncertainty by aligning vendor production plans and company demand forecasts (Meisheri et al., 2022). Vendor performance monitoring—using scorecards that measure on-time delivery (OTD), lead time adherence and defect rates—has been empirically linked to improved reliability in component supply (Deloitte, 2022).

Warehouse Controls and Traceability Technologies

Barcode and RFID technologies materially reduce manual posting errors at GR and GI stages (Batarlienė & Jarašūnienė, 2024). Use of mobile scanning linked to ERP shortens the time from physical receipt to system acknowledgement and improves traceability required for reman cores and serialized components.

Billing Automation and Financial Implications

Delays in billing (Done Billing) extend days-sales-outstanding and impede reliable revenue recognition. Automated triggers—where a complete set of delivery and acceptance documents initiates invoice generation—reduce dependency on manual submissions and mitigate month-end closing issues (Inbound Logistics, 2024).

This literature grounds the interpretation of empirical findings and supports the design of pragmatic interventions for UT's reman operations.

METHODS

Research Design

This study adopts a qualitative case-study design to capture process complexity and contextual nuance in UT's Reman operations. The case-study lens is well suited to organizational process analysis where multiple stakeholders, systems and physical flows interact (Yin, 2018).

Data Collection Methods

Data were collected over the internship period using:

- Participatory observation within PSBD OBD activities (daily logs, task observation, and hands-on transactions),
- In-depth semi-structured interviews with supervisors, warehouse staff, SAP operators, and logistics coordinators,
- Documentary analysis of SOPs, SAP transaction histories (GR/GI/DO), purchase orders (PO), delivery orders (DO), and the web-based customer portal documentation.

Detailed daily logs and activity records provided chronology and empirical grounding for event-level analysis.

Unit of Analysis and Scope

The unit of analysis is the end-to-end Reman transaction: from site planning and RFU stock check, through vendor production and inbound receipt, to final outbound dispatch and Done Billing. The study emphasizes operational stages most critical to transaction completion: vendor coordination, GR, GI, delivery routing, and billing.

Data Analysis Technique

Data were analyzed following the Miles, Huberman & Saldaña approach (data reduction, display, conclusion drawing/verification). Triangulation among observation, interviews, and documents ensured validity. Patterns were coded into the five primary problem domains observed in the field.

RESULTS

This section presents detailed empirical findings for each major problem area identified during the internship and offers an integrative discussion linking cause, operational impact, and remedial actions.

Overview of Key Findings

The field evidence shows five interrelated operational issues: (1) vendor delays in component preparation; (2) delayed or incomplete Goods Receipt (GR) processing; (3) Goods Issue (GI) posting errors and master-data inconsistencies; (4) distributor delivery mismatches; and (5) incomplete Done Billing records. These areas exhibit cascading effects: upstream disruption at the vendor level increases urgency and manual interventions downstream, which in turn magnify data entry errors and billing latencies. The dataset and daily logs substantiate each category with specific instances and frequency counts (see appendices and daily log extracts).

Vendor Difficulties in Preparing Components

Empirical evidence. Multiple POs observed during the internship surpassed nominal lead times. Several vendor shipments were reported as "waiting for BAST" (handover documentation) before dispatch, and in some cases vendors required additional repair or parts procurement. Observations reveal a recurring mismatch between UT site-tentative scheduling and vendor production capacity.

Root Causes

1. Production capacity constraints at vendor facilities for major components (engines, transmissions).
2. Upstream material shortages and import/customs delays that elongate manufacturing cycles.
3. Insufficient integration of site-level tentative plans with vendor production schedules (communication gaps).
4. Incomplete pre-shipment documentation (e.g., missing BAST/packing list) delaying GR processing.

Operational Impact

- Increased stock-out risk for Ready-For-Use (RFU) components leading to postponed maintenance windows at customer sites.
- Backlog of pending installations as reman parts are not available when planned.
- Increased expedite costs and pressure to use premium freight options in urgent cases.

DISCUSSION

The vendor issues align with CPFR literature: absence of a reliable shared forecast and transparent production status increases bullwhip effects and lead time variability (Meisheri et al., 2022). Where vendors face capacity constraints, UT's reliance on a single source for critical components exacerbates vulnerability. Vendor documentation gaps further slow downstream GR processing and must be considered both a production and administrative failure.

Recommendations (targeted)

- Implement vendor scorecards (OTD, defect rate, documentation completeness) and link performance to preferred supplier status.
- Create a vendor portal/API for shared visibility into production milestones and expected ETAs.
- Maintain safety stock for tier-1 critical components using ABC-criticality analysis.

Goods Receipt (GR) Issues — Receipt-to-Record Lag

Empirical evidence. Cases where physical goods had arrived but SAP GR postings were delayed were frequent. Reasons included missing documents from the vendor, receiving at the wrong facility (hub vs. main warehouse), and cost-center verification delays. These delays created divergences between physical inventory and SAP records.

Root Causes

1. Incomplete or late vendor documentation (DO, packing list, serial numbers).
2. Unclear receiving points arising from multi-hub logistics structures.
3. Finance/Cost Center approvals pending prior to SAP posting due to perceived cost implications.

Operational Impact

- Systemic discrepancy between actual and recorded stock results in misinformed order allocation.
- Accounting closing cycles are affected by late postings.
- Reman cores or RFU components remain outstanding in logistics queues if GR is not posted.

The GR problem is a classic "recording lag" that undermines trust in the ERP system. Digital document flows and mandatory inbound checklists are shown to reduce latency in similar industrial contexts (Batarlienė & Jarašūnienė, 2024). UT's deployment of an electronic approval

(e-approval) workflow helps but remains limited by user adherence and cross-departmental synchronization.

Recommendations (Operational)
- Enforce a receiving checklist that must be completed at gate before physical transfer to storage.
- Deploy mobile barcode/RFID scanning to capture serial numbers and immediately create GR drafts in SAP.
- Define SLA for GR posting (e.g., within 24 hours of physical receipt) and monitor via KPI dashboards.

Goods Issue (GI) Component Issues — Posting Accuracy and Master Data

Empirical evidence. GI postings sometimes used incorrect material codes or price codes; branch-level master-data diverged from headquarters lists. Instances of wrong quantity or incorrect item selection resulted in stock report mismatches and delayed dispatches.

Root Causes
1. Human error during manual data entry.
2. Fragmented master data governance, causing inconsistent price codes and article master between locations.
3. Absence of systematic two-person verification prior to final GI posting.

Operational Impact
- Misallocated stock and inaccurate availability displays in SAP.
- Rework and corrective postings increase administrative workload and may create audit trails that are difficult to reconcile.
- Customer shipments are delayed when GI discrepancies are discovered.

The GI errors underscore the critical role of master-data governance. Automation reduces error but only where source data and processes are standardized. Training is necessary but insufficient alone; structural controls—master-data synchronization, enforced validations, and mandatory verification—yield more robust outcomes (Traxtech, 2023).

Recommendations (governance & control)
- Establish master-data governance with periodic synchronization and version control (one authoritative price list).
- Require 2-person verification for GI postings above a monetary threshold; log verifier IDs for audit.
- Extend barcode/RFID use to the picking/dispatch stage to ensure scanned items match GI postings.

Distributor Delivery Mismatches — Routing & Addressing Failures

Empirical evidence. Several workflows showed that shipments reached incorrect sites because of address similarity, last-minute customer changes, or distributor misalignment. Delivery mismatches forced re-routing, additional costs and installation delays, documented in the daily logs and incident registers.

Root Causes
1. Ambiguous address data and inconsistent customer master records.
2. Inadequate pre-shipment confirmation with the receiving party.
3. Weak real-time visibility of in-transit shipments.

Operational Impact
- Extended downtime for customer assets awaiting component installation.
- Increased reverse logistics cost and administrative claims.
- Customer dissatisfaction and potential reputational damage.

Delivery mismatches indicate gaps in both data quality and operational discipline. Pre-shipment digital confirmation and ubiquitous proof-of-delivery (POD) systems reduce such incidents. UT's two-way confirmation and digital distribution dashboard are steps in the right direction but must be institutionalized as mandatory SOPs.

Recommendations (routing & communications)
- Implement pre-shipment confirmation (SMS/email + system acknowledgement) at least two hours before loading.
- Leverage POD mobile apps with photo, GPS stamp and electronic signature uploaded to SAP.
- Clean and standardize customer master addresses by integrating a GIS or address validation API.

Incomplete Sales Data and "Done Billing" Shortfalls

Empirical evidence. A non-trivial proportion of high-value component transactions were not reflected as "Done Billing" at period close. The primary causes were late submission of supporting documents, semi-manual billing processes, and weak inter-department coordination between logistics and finance.

Root Causes
1. Manual billing processes prone to human omissions.
2. Asynchronous department workflows — logistics may mark DO complete while finance is waiting for documentation.
3. Lack of automated triggers that convert complete shipping and acceptance data into draft invoices.

Operational Impact
- Distorted sales performance metrics and delayed revenue recognition.
- Longer days-sales-outstanding (DSO) and stretched accounts receivable cycles.
- Auditing and month-end reconciliation complexity.

Automating the billing trigger contingent on complete GR/GI/DO documentation reduces manual dependency and shortens the billing cycle. The web-based customer portal UT implemented improves transparency, but adoption and integration into core financial processes remain essential for full benefits.

Recommendations (billing automation)
- Configure SAP to auto-trigger invoice drafts when DO, GR and acceptance certificates are present.
- Require digital uploads of supporting documents to the customer portal before billing cut-off.
- Define cut-off windows and automated escalation when required docs are not present within the window.

Systems Perspective — Interactions and Cascading Effects

Synthesis. Problems do not appear in isolation. The evidence supports a cascading model: vendor delays → urgent re-planning → expedited shipments/manual overrides → increased

human entry → GR/GI errors → incomplete billing. Thus, any meaningful improvement program must be end-to-end rather than isolated to a single step.

Strategic discussion. The literature emphasizes a people–process–technology triad. UT has invested in technology (SAP, dashboards, portals) but the internship findings show the remaining gaps are largely process adherence and governance. Interventions should therefore couple technical deployments with stronger governance, KPIs, and capacity-building.

Operational KPIs and Target Setting (Proposed)

To monitor progress, the following KPIs are recommended (with initial targets):

- Vendor On-Time Delivery (OTD): target ≥ 95%
- GR Posting within SLA (24 hours): target ≥ 95%
- GI Posting Accuracy: target ≥ 99%
- Delivery Accuracy (correct site on first attempt): target ≥ 99%
- Done Billing on-time (month close): target ≥ 98%

These metrics should feed a cross-functional dashboard reviewed weekly by operations, logistics and finance.

Short-term vs Mid-term Action Plan

- Short-term (1–3 months):
  Enforce inbound checklists, mandatory pre-shipment confirmations, SAP refresher training for operators, and two-person verification for GI.
- Mid-term (3–12 months):
  Vendor portal rollout, barcode/RFID full adoption, master-data governance program, automated billing triggers, and customer address standardization (GIS integration).

CONCLUSION

This study of Reman transactions at PT United Tractors demonstrates that while SAP-based digital infrastructure provides a robust foundation, operational performance is constrained by a mixture of upstream vendor variability, administrative lags at GR, data and posting errors at GI, delivery routing failures, and incomplete billing. These problems form an interdependent chain: upstream variability creates downstream stress that increases human interventions and consequently raises the frequency of data errors and billing delays. Effective remediation must therefore be systemic—addressing vendor collaboration, data governance, process automation, and human capability simultaneously.

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