THE ROLE OF ACCOUNTING INFORMATION SYSTEMS IN MANAGERIAL DECISION-MAKING: A CASE STUDY OF THE CODA SYSTEM AT PT DELI JAYA SAMUDERA

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Abstract:
This study aims to examine and analyze the role of Accounting Information Systems (AIS) through the implementation of the Unit4 Financials CODA application in supporting managerial decision-making within stevedoring/cargodoring (PBM) operations at PT Deli Jaya Samudera (Samudera Indonesia Group, Belawan Port). Employing a qualitative descriptive case study approach, primary data were gathered through direct field observations, structured in-depth interviews with key financial personnel (Finance Manager, Finance Staff, Tax Staff), and documentary analysis of operational accounting records (Job Orders, Bank Receipts, Bank Payments, SIS billing, and Jasper financial reports). The findings indicate that the CODA system serves effectively as the core accounting backbone for general ledger maintenance, journalizing, cash flow tracking, and automated financial statement generation, significantly enhancing financial reporting accuracy, internal control, and data-driven decision-making regarding operational cost efficiency, vendor payment scheduling, and accounts receivable collection. However, operational bottlenecks persist due to incomplete system integration: initial Job Orders (JO) remain reliant on unintegrated Google Spreadsheets, and invoice bridging between the Stevedoring Information System (SIS), CODA, and Jasper reporting modules requires manual data synchronization, occasionally causing reporting lags and reconciliation discrepancies. In conclusion, while AIS through CODA operates functionally to support managerial decisions, holistic Enterprise Resource Planning (ERP) integration and automated data bridging are essential to optimize information velocity and long-term organizational agility.

1. INTRODUCTION

In the contemporary digital economy, maritime port logistics and terminal handling operations operate within dynamic, highly competitive environments demanding swift, accurate, and structured financial data processing. As critical nodes in maritime distribution,

stevedoring and cargo-handling service companies (Perusahaan Bongkar Muat / PBM) coordinate complex workflows involving vessel schedules, labor force deployment (Tenaga Kerja Bongkar Muat / TKBM), equipment utilization, and multi-party commercial contracting. To ensure long-term sustainability and operational excellence, management requires timely, reliable financial information to steer strategic, tactical, and operational decision-making.

An Accounting Information System (AIS) functions as the foundational mechanism for transforming raw transactional data into meaningful, structured accounting intelligence (Romney & Steinbart, 2021; Mulyadi, 2021). According to Widjaja (2024) and Zace & Shuli (2025), robust accounting systems directly improve financial reporting quality, minimize managerial error risks, strengthen internal governance, and accelerate decision latency. High-quality accounting information—characterized by relevance, accuracy, timeliness, and reliability (Tran Thanh Thuy, 2025)—enables corporate managers to evaluate cost structures, manage liquidity, enforce credit control, and optimize capital allocation.

PT Deli Jaya Samudera, established in 1986 under the corporate umbrella of Sub-holding PT Tata Bandar Samudera (Samudera Indonesia Group), is a premier provider of stevedoring, cargodoring, receiving/delivery, and trucking services operating at the Port of Belawan, Medan. To administer its financial and operational workflows, the company utilizes three distinct information systems: (1) the Stevedoring Information System (SIS) for generating customer service billings and advance payment invoices; (2) the Unit4 Financials CODA application as the central general ledger, transaction journalizing, and financial reporting engine; and (3) Jasper Server for compiling accounts receivable (AR) aging, accounts payable (AP) schedules, and bank reconciliations.

Field observations during operational monitoring revealed that these digital platforms operate in a semi-fragmented architecture rather than a seamless Enterprise Resource Planning (ERP) environment. Initial job cost estimates and tonnage metrics in Job Orders (JO) are drafted via cloud spreadsheets (Google Sheets), while transactional bridging between SIS, CODA, and Jasper requires manual interventions and data reconciliations. This multi-system fragmentation introduces administrative lags, potential reconciliation discrepancies, and delayed financial reporting. Consequently, this study aims to examine the operational implementation of AIS through the CODA application at PT Deli Jaya Samudera and critically evaluate its role and effectiveness in facilitating managerial decision-making in port stevedoring services.

2. RESEARCH METHODS

2.1 **Research Design and Site**

This study utilized a qualitative descriptive case study design (Creswell & Poth, 2023) to examine the contextual execution and organizational role of AIS in a real-world enterprise setting. The research was conducted at the operational headquarters of PT Deli Jaya Samudera, situated within the Samudera Logistics Center (SLC) Complex, Jl. Raya Pelabuhan Gabion, Belawan, Medan, North Sumatra.

Table 1. Informant Profile and Functional Responsibilities

Code	Position / Role	Primary Responsibilities	Role in AIS & Decision-Making
R1	Finance Manager	Financial oversight, reporting control, and treasury management	Evaluates CODA/Jasper financial reports to formulate operational & financial policies
R2	Finance Staff	Transaction recording, cash flow input, and ledger maintenance	Executes Bank Receipts (BR), Bank Payments (BP), AR/AP ledgers, and SIS-CODA bridging
R3	Tax Staff	Tax compliance, tax reconciliation, and billing support	Administers SIS billing generation, tax invoice reconciliation, and PPh/PPN reporting

2.2 Data Collection and Analysis Techniques

Data were gathered through triangulated qualitative methods: (1) Direct Participant Observation during field training (August–September 2025); (2) Semi-structured In-Depth Interviews with three key informants (Table 1); and (3) Documentary Review of primary accounting artifacts (Job Orders, Bank Receipts, Bank Payments, SIS billing logs, PINV vouchers, and Jasper reporting statements). Data analysis followed Creswell's interactive qualitative model: data organization and transcription, initial coding, thematic categorization, structural descriptive synthesis, and theoretical verification.

3. DISCUSSION

3.1 Architecture and Workflow of the Accounting Information System

The AIS at PT Deli Jaya Samudera operates as a multi-system network supporting stevedoring and cargodoring activities. The system configuration comprises:

1. Stevedoring Information System (SIS): A specialized front-end operational billing platform used to calculate stevedoring tariffs based on vessel manifests and issue down-payment (DP) and final settlement customer invoices.

2. Unit4 Financials CODA: The core financial enterprise engine utilized exclusively by finance personnel for general ledger administration, chart of accounts maintenance, automated transaction journalizing, Bank Receipt (BR) postings, Bank Payment (BP) disbursements, Purchase Invoice (PINV) registrations, and vendor payables processing.

3. Jasper Server: An automated reporting module that extracts processed transactional datasets from CODA to generate standardized management reports, notably Accounts Receivable (AR) aging schedules, Accounts Payable (AP) maturity reports, and monthly Bank Reconciliations.

4. Cloud Spreadsheet Repository (Google Sheets): Utilized by commercial marketing and operations teams to draft initial Job Orders (JO), containing vessel particulars, estimated cargo tonnage, revenue projections, and expected operating margins.

Table 2. Functional Mapping of AIS Subsystems in Stevedoring Operations

Subsystem / Tool	User Department	Primary Accounting Function	Integration & Data Flow
Google Spreadsheet	Marketing & Operations	Job Order (JO) drafting, vessel volume & cost estimation	Manual data entry; not integrated directly into CODA database
SIS Platform	Finance & Tax Staff	Stevedoring invoice calculation, DP/final billing issuance	Generates billing files; bridged electronically to CODA ledger
Unit4 CODA	Finance Department	General ledger, journal vouchers (BR/BP/PINV), AP/AR booking	Core financial database; feeds raw accounting data to Jasper
Jasper Server	Finance & Management	AR/AP aging extraction, balance sheets, bank reconciliation	Pulls data from CODA; outputs analytical management summaries

Stevedoring Operational Accounting Workflow: The operational accounting cycle initiates when Marketing issues a Price Quotation (SPH) and receives a formal Purchase Order (PO) or service contract from shipping clients. Marketing creates a Job Order (JO) specifying estimated cargo tonnage, labor shifts, equipment needs, and tariff tiers. Finance issues an advance invoice (75% DP for TKBM labor) via SIS. Upon customer remittance, Finance records a Bank Receipt (BR) in CODA. Operations coordinates discharge/loading with port authorities and TKBM cooperatives. Following operational completion, TKBM settlement billings and third-party vendor charges (e.g., GPS tracking, crane rentals) are verified against job manifests, registered via Purchase Invoices (PINV) in CODA, and settled via Bank Payments (BP). Final invoices are generated in SIS and bridged into CODA, recognizing realized revenue and closing the job file.

3.2 Impact of AIS on Managerial Decision-Making

Empirical evidence reveals that the CODA-driven AIS plays a vital role across key managerial decision domains at PT Deli Jaya Samudera:

1. Operational Cost Control and Job Profitability: CODA and Jasper reports allow management to compare initial Job Order cost projections against actual realized expenditures

(labor wages, equipment depreciation, fuel, port dues). Discrepancies prompt immediate operational reviews and renegotiations for recurring vessel calls.

2. Working Capital and Cash Flow Governance: Real-time cash summaries and bank reconciliation outputs in CODA prevent liquidity shortfalls, ensuring timely disbursement of mandatory TKBM advance wages without disrupting corporate liquidity.

3. Credit Management and AR Aging Enforcement: Jasper AR aging schedules categorize customer receivables by aging brackets (current, 30, 60, 90+ days). This empowers management to enforce credit limits, mandate cash-before-service terms for delinquent shippers, and deploy targeted collection protocols.

4. Vendor Selection and Payables Scheduling: AP reports in CODA track credit maturities and tax compliance (PPh 23 withholding and PPN), enabling strategic payment timing that optimizes vendor relationships while capturing cash discounts.

3.3 System Bottlenecks and Structural Limitations

Despite functional strengths, the study identified key structural vulnerabilities in the current AIS architecture:

1. Incomplete Integration of Front-End Job Orders: The reliance on manual Google Sheets for drafting initial Job Orders creates an unlinked data silo. Job parameters lack automated synchronization with CODA, increasing vulnerability to unauthorized figure alterations or human calculation errors.

2. Inter-System Bridging Vulnerabilities: Bridging data from SIS to CODA occasionally encounters technical transmission failures (e.g., procurement and billing code mismatch errors logged via IT Helpdesk requests). Resolving these transmission errors requires cross-departmental coordination, delaying invoice validation and financial statement closing.

3. User Dependency and Manual Ledger Posting: Several specialized operational costs still require manual journal vouchers, leaving data integrity dependent on the meticulousness and accounting proficiency of individual finance operators.

4. CONCLUSION

1. The Accounting Information System implemented through the Unit4 Financials CODA application at PT Deli Jaya Samudera operates in a structured and functionally capable manner, successfully anchoring transaction recording, automated journalizing, and financial reporting across maritime stevedoring operations.

2. Information outputs generated by CODA and Jasper provide empirical, objective foundations for managerial decision-making, notably in operational cost control, working capital liquidity planning, vendor payables scheduling, and accounts receivable credit governance.

3. The primary operational constraint lies in incomplete inter-system integration—characterized by isolated front-end Job Order spreadsheets and occasional

electronic bridging errors between SIS, CODA, and Jasper—which periodically delays financial reporting velocity.

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