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Analysis of office supply management and disbursement system to enhance efficiency at PT API

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Abstract - The management of office stationery supplies (ATK) plays a crucial role in supporting the operational efficiency of a company, especially in daily administrative activities. This study aims to analyse the method of disbursement and determination of stationery inventory at PT API. A qualitative approach with a case study method was employed. Data collection techniques included interviews, direct observations, and documentation of goods receipt and disbursement reports in the company's asset unit. The analysis reveals that the ATK disbursement method currently in use is still periodic and not entirely based on actual data, resulting in discrepancies between stock levels and real operational needs. Additionally, the determination of inventory levels is conducted without the implementation of a standardized system, which poses risks of both overstocking and stock shortages. The application of the FIFO (First In, First Out) method is considered more appropriate in this context as it improves inventory management efficiency, reduces waste, and reflects a more realistic inventory value in financial reporting. The study concludes that the implementation of a data-based inventory management system and standardized Standard Operating Procedures (SOPs) is essential to ensure better control over ATK disbursement and to support corporate accountability. This would also align inventory practices with operational demands and financial transparency.

Keywords: inventory management, stationery supplies, fifo method, operational efficiency

1. Introduction

Every organization—whether public or private—is required to manage its resources effectively and efficiently to support smooth daily operations. One often-overlooked yet critical aspect of this management is the handling of office stationery supplies (ATK). These supplies serve as essential tools that facilitate administrative tasks, internal communication, and coordination across divisions. Therefore, proper management and control of ATK disbursement and stock are integral to enhancing operational efficiency and controlling overhead costs.

PT API, as a public-infrastructure management company, faces specific challenges in optimizing ATK inventory. Preliminary observations reveal that current disbursement practices are not fully aligned with actual needs and lack standardized inventory methodologies. Consequently, this has led to budget inefficiencies, accumulation of unused stock, and stock-outs

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during times of need. These issues not only disrupt day-to-day operations, but also reflect deficiencies in asset management and financial oversight.

A well-implemented inventory management system maintains a balance between demand and supply, boosting overall organizational effectiveness. As Sunyoto (2021) points out, integrating demand forecasting with systematic stock control leads to significant cost savings and improved resource utilization. In PT API's case, internal reports on ATK receipt and issuance show notable fluctuations and misalignment between available stock and actual consumption, indicating an urgent need to reassess current methods.

Similar issues have been documented in other public institutions. In the Bandung Regency National Land Agency, Sulastri et al. (2024) found that the absence of structured administrative processes and standardized documentation for ATK distribution resulted in poor tracking and reporting challenges. Without formal request forms or standardized recording formats, such cases hinder monthly accountability and trigger operational inefficiencies.

These findings highlight the critical need for enhancement in ATK management systems at PT API. Failure to address this could perpetuate operational bottlenecks, inflated administrative costs, and weakened accountability, undermining both daily efficiency and long-term sustainability.

This research draws from several established inventory management theories to support the analysis of ATK (office stationery) control systems. First, inventory control principles such as Economic Order Quantity (EOQ), Just-In-Time (JIT), and the First In, First Out (FIFO) method emphasize balancing ordering and holding costs to maintain optimal inventory levels (Saputra, 2021). The FIFO method, in particular, is vital for minimizing waste by ensuring older stock is used before newer items, which is especially applicable to perishable or frequently updated supplies like ATK. Additionally, asset management and internal control frameworks link inventory systems to the accuracy of financial reporting and institutional accountability, as noted by Amaliah et al., (2019; cf. Kaju & Ngenang, 2022; cf. Anshari (2016). In public sector settings, such as the Bandung Land Agency, effective inventory documentation relies on standardized requisition forms and SOPs to ensure accountability and transparency (Sulastri et al., 2024).

Sunyoto's findings on medium-sized enterprises further reinforce the importance of structured, data-driven inventory approaches to prevent overstocking and shortages. Together, these frameworks underline the critical role of systematic inventory management in supporting both operational efficiency and institutional integrity.

Sunyoto's study on inventory management in medium-sized enterprises found that structured, data-driven systems—including forecasting models, routine reviews, and transparent usage tracking—significantly minimized both surplus and shortages. Although the study did not specifically address ATK (Alat Tulis Kantor or office stationery), its findings have direct relevance for office supply inventory by promoting proactive rather than reactive stock control (Sunyoto, 2021). In a more focused context, Sulastri and colleagues conducted a qualitative investigation into the ATK distribution system at the BPN (Badan Pertanahan Nasional) Bandung Regency. The research revealed that the absence of formal request mechanisms and inconsistent documentation led to uncontrolled issuance and delays in monthly inventory reporting. Their recommendation emphasized the need for standardized request forms and formalized standard operating procedures (SOPs) to improve transparency and accountability (Sulastri et al., 2024).

Amaliah et al. (2019) examined the relationship between public asset management and financial reporting practices. Their findings underscored that effective inventory tracking systems, including the application of the FIFO (First In, First Out) principle, contributed significantly to the precision of financial records. They argued that these practices not only reduced inventory discrepancies but also reinforced institutional financial credibility through accurate, timely reporting (Amaliah et al., 2019). Anshari focused on regional government asset management and emphasized that poor recordkeeping practices can lead to unreliable financial statements. The study highlighted that consistent classification, timely system updates, and digital asset monitoring are critical for government agencies striving for an "Unqualified

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Opinion" in external audit evaluations. In this context, the integrity of asset and inventory systems is directly tied to institutional accountability and audit success (Anshari, 2016).

The collection of studies offers significant insights into operational efficiency and strategic management within Nigerian industries. One paper explores the influence of technology adoption on supply chain management in Southeast Nigerian breweries, highlighting how digital tools can enhance coordination and performance (Ugwu & Balogun, 2024). Another study examines the connection between strategic innovation management and operational success in the upstream petroleum regulatory commission, emphasizing the role of innovation in navigating complex regional challenges (Emefo et al., 2025). Additionally, a focused empirical review on total quality management and continuous improvement provides a structured analysis of how these practices contribute to process performance across sectors (Ugwu, 2024). Collectively, these works underscore the growing relevance of innovation, technology, and quality frameworks in shaping sustainable industrial performance in Nigeria.

Building upon previous studies and the institution's unique context, this research addresses the following problems: (1) Inconsistency between ATK stock levels and actual operational needs—indicating misalignment in demand tracking and issuance protocols. (2) Lack of standardized stock determination methods, leading to overstocking and stock-outs. (3) Inadequate administrative control over ATK issuance, reflected in missing documentation and unclear tracking. (4) Absence of formal SOPs for ATK management, resulting in ad-hoc practices and low accountability. (5) Potential financial distortion in asset reporting, impacting budgeting and cost-efficiency.

This study analysed ATK issuance patterns and evaluate current stock determination methods at PT API. Using a qualitative case-study approach, it will compare findings to theoretical best practices and prior research. The goal is to accurately diagnose operational weaknesses and recommend strategic improvements—such as FIFO implementation, data-driven stock systems, and formalized SOPs—to enhance efficiency, accountability, and sustainability.

2. Method

This research employs a qualitative approach aimed at analysing the process of disbursement and the method of determining office stationery (ATK) inventory at PT API. A qualitative method is selected due to its strength in providing a comprehensive understanding of the managerial processes observed in real operational contexts. This approach emphasizes the interpretation of meaning behind phenomena occurring in natural settings, where the researcher acts as the main instrument (Sugiyono, 2020). The design enables in-depth exploration of both procedural practices and the contextual factors affecting inventory management within the company.

2.1 Method of Providing Data

The data sources in this study are divided into primary and secondary categories. Primary data were collected through direct observation and semi-structured interviews with staff in the asset unit responsible for managing office supplies. The observations allowed the researcher to examine the on-site processes related to the issuance, recording, and distribution of stationery items. Interviews were conducted to uncover internal perspectives on current practices, challenges, and policy implementation in the ATK management system.

Secondary data were obtained from internal documents, such as inventory reports, ATK disbursement records, warehouse stock summaries, and archival materials. These documents provided supporting evidence and helped verify the information obtained during observations and interviews. Relevant literature on inventory management was also reviewed to contextualize the findings and compare them with established theories and best practices.

To ensure the credibility and validity of the data, the study utilized triangulation methods, including source triangulation (different types of informants and documentation), method triangulation (combining observation, interviews, and documentation), and time triangulation (repeated observations at different times). This triangulated approach ensured that

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the findings were comprehensive, consistent, and reliable from various perspectives and timeframes (Creswell & Poth, 2018; Moleong, 2017).

2.2 Data Analysis

The data analysis process followed the classical qualitative analytical model consisting of data collection, data reduction, data presentation, and conclusion drawing/verification, as outlined by Miles, Huberman, and Saldaña (2014). After collecting the data, the researcher organized and selected relevant information, reducing unrelated or redundant inputs. The reduced data were then categorized thematically and presented in matrices and descriptive formats to facilitate interpretation.

This study also involved a technical evaluation of the inventory valuation methods applied within PT API. Three common inventory valuation methods were examined: FIFO (First In, First Out), LIFO (Last In, First Out), and Average Cost Method. Based on both field data and theoretical review, FIFO was identified as the most appropriate for PT API, as it aligns with the actual physical flow of goods and presents more realistic inventory values—particularly during periods of price fluctuation (Ali et al., 2022). Conversely, LIFO may distort financial outcomes by reducing reported net income, while the Average method provides price stability when market costs are volatile (Khairunnisa et al., 2023).

The analysis also revealed that PT API still uses manual recordkeeping and lacks a digitally integrated inventory management system. This results in inefficiencies, such as delays in stock tracking, unmonitored disbursements, and discrepancies between recorded and physical inventory. These findings underscore the importance of transitioning to a digital inventory control system equipped with standardized procedures and real-time monitoring capabilities.

3. Results and Discussion

3.1 Results

3.1.1 Overview of ATK Management at PT API

The management of *Alat Tulis Kantor* (ATK) or office stationery at PT API involves a systematic process that starts from departmental requisitions to procurement, inventory control, and disbursement. Based on logistic records and internal documentation from 2020 to 2024, it is evident that the most commonly requested ATK items include A4 copier paper, pens, markers, folders, notebooks, printer ink, and staplers. Among these, A4 paper and printer cartridges consistently ranked as the top two most requested items, reflecting the company's heavy reliance on print-based documentation workflows.

The following table illustrates the trends in ATK requests and fulfilment rates from 2020 to 2024.

Table 1. Yearly ATK Request and Fulfilment Rates (2020–2024)

Year	Total ATK Requests	Approved Requests	Fulfilment Rate (%)
2020	3,875 items	3,250 items	83.9%
2021	4,120 items	3,700 items	89.8%
2022	4,565 items	4,010 items	87.9%
2023	4,980 items	4,380 items	87.9%
2024	5,260 items	4,900 items	93.2%

The trend indicates a gradual increase in both requests and fulfilment capacity over the years, attributed to better procurement forecasting and stock control practices introduced in early 2022. The improved fulfilment rate in 2024, nearing 93.2%, suggests the implementation of a more responsive restocking mechanism and a closer alignment between demand forecasting and actual usage patterns.

Nevertheless, certain inefficiencies remain, especially in peak months when usage spikes are not anticipated by the current stock management system, leading to delays or stockouts for

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frequently used items such as toner and envelopes. These challenges emphasize the need for real-time inventory visibility and predictive analytics in supply chain operations, consistent with prior findings by Gunasekaran et al. (2017) that underscore the importance of digital systems in inventory performance optimization.

3.1.2 Flow of ATK Disbursement (Current SOP)

PT API currently employs a 10-step Standard Operating Procedure (SOP) to manage the request and distribution of ATK. The steps begin with a formal requisition form submitted by the requesting unit, followed by approval from the department head. Once approved, the request is forwarded to the general affairs division, which checks available stock and then prepares the requested items for disbursement. The goods are then signed off by both the staff receiving them and the inventory officer, after which the transaction is recorded manually in a ledger.

The disbursement process is visualized in *Gambar 1: Flowchart Pengeluaran ATK*, which highlights the sequential stages from request submission to item delivery. Several manual touchpoints are evident—especially in the approval and verification stages—which contribute to delays and increase the probability of human error. For example, any delays in managerial approval (step 2) or misalignment in item availability (step 6) can significantly lengthen the total process time.

Furthermore, the absence of automated notifications and digital approval mechanisms makes the workflow prone to miscommunication between departments. An internal memo from the General Affairs Division (Memo No. GA/04/2023) specifically notes frequent mismatches between approved forms and available stock due to outdated inventory reports, which are manually updated weekly.

The reliance on paperwork and face-to-face sign-offs for relatively routine ATK requests also suggests that the current system does not leverage available digital tools to improve efficiency or transparency. As Zhou et al. (2020) argue, organizations that fail to automate administrative logistics are more likely to encounter workflow bottlenecks and duplication of effort in supply chain operations.

3.1.3 Identified Issues in the Current System

The current ATK management system at PT API exhibits several operational weaknesses that hinder optimal efficiency. First, the lack of digital integration is the most critical shortcoming. Inventory levels are tracked using spreadsheets and are manually updated weekly. This not only delays the reflection of real-time stock status but also creates inconsistencies between actual physical inventory and recorded levels. Gunasekaran et al. (2017) emphasize that digitalization in supply chain operations significantly improves accuracy and responsiveness, both of which are lacking in PT API's present setup.

Second, approval delays are recurrent due to the requirement for wet signatures by division heads who are often unavailable or overwhelmed with other responsibilities. Zhou et al. (2020) explain that such bureaucratic approval chains are a primary cause of inefficiency in resource allocation, especially in large organizations with decentralized departments.

Third, the lack of a centralized coordination mechanism results in overlapping requests and stock depletion. Since different departments submit their ATK requisitions independently, the general affairs division is often unable to consolidate or prioritize orders effectively. This decentralized approach leads to uneven stock availability across departments, with certain units stockpiling items while others experience shortages. These findings align with studies by Chan et al. (2019), who highlight the importance of centralized coordination in inventory pooling and equitable resource distribution.

Finally, observational data indicate frequent mismatches between approved reservation forms and actual inventory levels. During several audit periods in 2023 and 2024, it was found that up to 12% of approved requests could not be fulfilled due to inaccuracies in reported stock levels. These discrepancies often result in ad-hoc procurement or emergency purchases, further complicating budget forecasts and increasing procurement lead time.

3.1.4 Inventory Management Techniques Currently Used

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At PT API, the prevailing approach to managing inventory for office supplies (*Alat Tulis Kantor or ATK*) is based nominally on the First-In-First-Out (FIFO) principle. FIFO is widely recognized in inventory management as a system that ensures older stock is used before newer arrivals, minimizing waste due to expiry or obsolescence (Waller, 2020). However, despite its adoption on paper, PT API exhibits several gaps in its practical implementation.

Field observations and staff interviews indicate that FIFO is not systematically enforced. For instance, in multiple documented cases between 2021 and 2023, newer batches of paper and printer toner were issued prior to older stocks, leading to the expiration or damage of supplies stored for extended periods. These cases illustrate a significant gap between policy and execution, often stemming from warehouse-level oversight, inconsistent labelling, and poor stock rotation habits. Furthermore, these lapses are exacerbated by the manual inventory checks, which lack real-time visibility and traceability (Gunasekaran et al., 2017).

Compounding the issue is the limited use of barcode systems or inventory tracking tools. Without automated tracking, warehouse staff rely on visual inspection and handwritten logs to determine stock age and prioritize disbursement. This informal approach makes it difficult to maintain FIFO integrity, especially when dealing with high-turnover items such as pens, correction tape, and standard A4 paper. In cases of internal audits, discrepancies have been found between documented inventory ages and actual issuance records, confirming that non-FIFO practices have led to recurring overstock situations or wastage.

According to research by Nah and Lau (2020), effective inventory management in public institutions hinges on automation, transparency, and staff compliance with inventory rotation rules. The lack of enforcement mechanisms at PT API undermines all three. For instance, although SOP documents mention FIFO, there is no standardized monitoring procedure to ensure compliance. Moreover, employees are rarely trained in warehouse logistics principles, leaving implementation at the discretion of individual staff, often leading to non-uniform practices across shifts.

In summary, PT API's intended use of FIFO remains more aspirational than operational. Bridging this gap would require system-wide improvements including digital tracking tools, periodic training, and clearer accountability protocols to mitigate inventory aging and wastage.

3.1.5 Departmental Roles and Discrepancies

Another major operational issue observed in PT API's ATK management system is the lack of clear departmental roles, particularly concerning the initiation of the "nota dinas" (official memorandum) for ATK requests. Ideally, the SOP designates each unit's administration officer to initiate the *nota dinas*, which is then forwarded to the Section Head and subsequently to the General Affairs team for approval and fulfilment. However, in practice, this process is inconsistently applied.

Interviews with five different departments revealed varying interpretations of who holds the responsibility to prepare the *nota dinas*. In some departments, junior administrative staff take the initiative, while in others, supervisors or secretaries are expected to fulfil this task. This ambiguity leads to delays, duplicated requests, or, conversely, unsubmitted requests that disrupt office operations. According to Mintzberg's organizational theory (1979), such role ambiguity can significantly reduce organizational efficiency and cause friction between departments, which appears to be the case here.

Furthermore, there is a notable disparity in how strictly departments follow the ATK SOP. While certain departments, such as Finance and HR, follow the SOP meticulously due to their compliance culture, operational teams like Security and Engineering are more flexible, sometimes bypassing official forms altogether by directly contacting warehouse staff via messaging apps. This not only violates the internal control protocol but also creates discrepancies in stock records and accountability. The warehouse team, unable to reconcile these informal requests with documented inventories, faces challenges in maintaining accurate stock forecasts.

Additionally, the inconsistent use of *nota dinas* affects overall stock visibility. Since warehouse staff rely on these documents for tracking demand, the absence or irregular submission of official requests leads to either excess ordering or unexpected shortages. This

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aligns with the findings of Zhou et al. (2020), who argue that centralized documentation and standardized workflows are critical for inventory efficiency in large organizations.

To resolve these issues, PT API needs to adopt a more structured and universally understood delegation framework for ATK requests. This includes issuing updated SOP manuals, conducting cross-departmental workshops to reinforce the correct procedures, and implementing digital request systems with role-based access and built-in approval hierarchies to reduce discrepancies and improve process transparency.

3.1.6 Budget Control and Procurement Integration

An essential component of effective ATK (*Alat Tulis Kantor*) management lies in the alignment of inventory practices with budgeting and procurement systems. At PT API, observations indicate a partial or, in some cases, a complete lack of integration between inventory systems and financial planning tools, particularly in relation to procurement cycles. This disconnect has led to operational inefficiencies, including delayed stock replenishment and redundant requests.

If an ERP system such as SAP is implemented—as suggested in several large-scale state enterprises—it is imperative to utilize its full capability to link purchasing modules with budgeting data. However, based on field observations, many users either underutilize or are unaware of SAP's integrated budgeting functions. Monk and Wagner (2013) argue that companies often fail to fully implement SAP modules due to a lack of training, complexity in configuration, or resistance from users who prefer manual practices. This results in fragmented workflows where budget approvals are processed manually, delaying procurement even when stock levels are critically low.

Another concern is the absence of a real-time budget tracking mechanism in relation to ATK usage. Departments often submit requests without visibility into remaining budget allocations, leading to over-ordering or halted approvals mid-process. As noted by Gunasekaran and Ngai (2004), integration between procurement and financial systems is essential to ensure organizational agility, cost control, and transparency in decision-making.

In some cases, procurement is halted entirely because of delays in updating stock reports and mismatches between requested items and actual needs. Interviews with procurement officers revealed that misalignment frequently occurs during quarterly budget revisions, when requested items are no longer considered a priority or the budget is exhausted. A more proactive procurement integration model, combined with automated alert systems, could significantly reduce downtime and improve stock accuracy (Zhou et al., 2020).

In summary, PT API's current ATK management practices are hindered by siloed budgeting systems and suboptimal use of integrated digital platforms. To enhance efficiency, the organization should consider refining its ERP workflows, increasing user training, and ensuring that inventory requests are automatically cross-referenced with available budget allocations.

3.1.7 Survey and Interview Insights

To gain qualitative insights into the operational effectiveness of the current ATK system, structured surveys and semi-structured interviews were conducted with administrative staff, logistics officers, and several department heads. The findings reveal both practical concerns and cultural barriers to change.

A significant portion of respondents (61%) expressed dissatisfaction with the current disbursement system, citing long delays between submitting requests and receiving supplies. Many pointed to the multi-layered approval system as the primary bottleneck. As one employee put it, "It sometimes takes more than a week just to get approval for pens and paper. By then, we've already purchased them ourselves."

Another recurring theme was the resistance to using digital tools. Although a centralized request form exists online, several departments still prefer to submit handwritten notes or physical memos, complicating tracking efforts. This aligns with findings by Davis (1989), who notes that user acceptance of technology is largely driven by perceived usefulness and ease of use. When tools are perceived as complex or unnecessary, users often revert to familiar manual methods.

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The interviews also revealed a lack of awareness regarding the company's Standard Operating Procedures (SOP). Many employees, especially newer ones, were unclear about which form to use, when to submit it, and which authority to seek approval from. This leads to inconsistencies across departments, resulting in procurement delays and occasional double-ordering.

One logistics officer noted: "Sometimes two different departments request the same item for the same project because they don't communicate, and there's no shared system that flags duplicates."

Despite these challenges, there were also encouraging insights. When asked about potential improvements, over 70% of respondents supported the idea of an integrated digital inventory dashboard and automated approval system. Employees expressed willingness to adapt if training were provided and if digital tools offered tangible time-saving benefits.

In conclusion, while the survey and interviews underscore the inefficiencies and cultural inertia in the current system, they also highlight an opportunity for digital transformation—provided it is accompanied by change management strategies and continuous staff engagement.

3.2 Discussion

3.2.1 Evaluating the Manual System vs. Digital Systems

At PT API, the current reliance on a manual inventory system for managing ATK (*Alat Tulis Kantor* or office stationery) has proven to be inefficient and prone to errors. Manual systems often lead to redundant processes, data entry mistakes, loss of paper-based records, and delays in stock updates. As Laudon and Laudon (2020) emphasize, manual systems lack integration capabilities and do not support real-time decision-making. Consequently, employees at PT API often face delays in accessing critical stock data, leading to bottlenecks in both procurement and distribution.

Digital systems, by contrast, offer several strategic advantages. A robust digital inventory control platform can enable real-time updates, allow traceability of inventory movement, and improve inter-departmental coordination (Chong & Bai, 2014). Furthermore, automation minimizes human error, ensures accurate stock counts, and improves transparency in procurement and usage history. Digital integration also supports forecasting and reporting, helping managers to make informed decisions about future stock needs.

Moreover, integrating inventory data with budgeting and procurement modules streamlines resource allocation and planning. Real-time dashboards, barcode systems, and automated reorder levels are features found in modern inventory management systems that can significantly enhance operational efficiency. Thus, transitioning from manual to digital is not just a matter of modernization but a strategic imperative for organizational agility and accuracy.

3.2.2 SOP Centralization and Coordination Challenges

One major operational challenge at PT API is the inconsistency in the implementation of Standard Operating Procedures (SOP) across departments. Each division interprets and applies SOPs differently, particularly in regard to stock requests and the issuance of internal memos or "nota dinas." Such decentralization creates confusion, leads to miscommunication, and hampers the speed of procurement responses.

Stevenson (2021) stresses the importance of centralizing procurement documentation to ensure uniformity, transparency, and accountability across departments. Without centralized control, discrepancies emerge in how and when items are requested, often resulting in overlapping orders, missing data, or delays. In some cases, "*nota dinas*" are drafted without proper authorization or lack supporting documentation, making audits difficult.

A proposed solution is to shift the issuance of "*nota dinas*" to a central department — ideally, the Asset Management Department — so that requests follow a standardized process. This would promote visibility, ensure compliance with SOPs, and provide a consistent audit trail. Additionally, centralized documentation can facilitate automated approvals and routing via an Enterprise Resource Planning (ERP) platform, further reducing inefficiencies.

Centralization can also mitigate accountability issues, ensuring that all requests are documented, traceable, and processed through an approved workflow. This model aligns with

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best practices in supply chain governance and can be tailored to align with PT API's existing organizational structure.

3.2.3 Evaluation of FIFO Implementation

The First-In-First-Out (FIFO) method is a commonly recommended inventory management technique that ensures older stock is utilized before newer items, thus minimizing waste due to expiration or obsolescence. Theoretically, FIFO supports optimal inventory rotation and reduces carrying costs (Heizer, Render, & Munson, 2020). It is especially important in contexts involving perishable goods or time-sensitive materials, although it is also relevant for ATK materials which can become obsolete or unusable over time.

At PT API, the implementation of FIFO remains inconsistent. Interviews with staff revealed that, while the principle is understood, it is not systematically enforced. In many instances, older stock remains unused while newer items are distributed. This has resulted in excessive build-up of inventory in some storage units, and in some cases, the expiration of items such as ink cartridges or special-use forms.

The lack of FIFO enforcement can be traced to the absence of a tracking system that records and monitors entry dates of inventory items. Without visibility into stock aging, staff cannot be expected to manually rotate items. As such, adherence to FIFO relies on individual initiative rather than system enforcement — a risk-prone approach.

To address this gap, the introduction of barcode systems or SAP integration is strongly recommended. A barcode system can assign unique identifiers to each item, including entry dates, location, and category. This allows automated tracking of item age and supports FIFO through alerts or usage restrictions. SAP, when fully integrated with material management modules, can facilitate FIFO by automating inventory issuing rules (Monk & Wagner, 2013). This ensures that requests are fulfilled from the oldest stock first, provided the system is configured accordingly.

Moreover, regular training and reinforcement of FIFO as a policy must accompany the technological solution. Employees should be sensitized on the financial and operational risks associated with ignoring FIFO — including stock wastage, financial write-offs, and inefficiencies. A performance metric related to FIFO compliance can be added to department audits to reinforce accountability. The move toward structured FIFO implementation also supports environmental sustainability goals by reducing waste and the need for emergency procurement. Over time, this can lead to significant cost savings and improved resource utilization.

3.2.4 Integrating Budgeting and Inventory Control

Effective inventory management is inseparable from robust budgeting systems. At PT API, the separation between budgeting and inventory control results in significant inefficiencies. There is currently no real-time integration between the financial modules and inventory systems. When inventory levels run low, procurement delays often occur because departments are unsure about budget availability. This disconnection contributes to delayed operations, overspending, and underutilized budgets.

The need for integration is supported by existing literature on enterprise systems. According to Monk and Wagner (2013), enterprise resource planning (ERP) systems like SAP are most effective when finance, procurement, and inventory modules operate in unison, ensuring real-time updates and visibility across departments. Without such integration, organizations are prone to "budget slippage"—a condition in which expenditures deviate from planned allocations due to poor synchronization between procurement needs and financial controls.

Several case studies highlight the importance of integrated systems. A study by Chong and Bai (2014) analysing supply chain operations in Asian logistics companies revealed that organizations with synchronized inventory and budgeting platforms reduced procurement delays by 34% and improved inventory accuracy by 27%. Similar outcomes could be realized at PT API with the appropriate adoption of SAP or other integrated systems.

Currently, some departments manually track budget ceilings and expenditures, increasing the likelihood of human error. This manual system also prevents managers from making real-time procurement decisions, as approvals often require cross-departmental

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clarifications. A digitally integrated inventory-finance system would ensure that all purchases are pre-validated against available budgets, thereby improving governance and compliance.

Thus, PT API is encouraged to implement tighter integration of budgeting and inventory systems. Doing so will not only streamline procurement processes but also provide decision-makers with real-time financial insights, reducing both waste and procurement lag.

3.2.5 Digital Transformation and Change Management

Despite the apparent benefits of digital inventory systems, many organizations face internal resistance to change. At PT API, several employees continue to favour manual processes, citing unfamiliarity with digital tools or fear of technological redundancy. This resistance significantly hampers the company's efforts toward modernization.

Kotter (2012) emphasizes that successful organizational transformation relies on addressing institutional resistance through a structured change management framework. This includes creating a sense of urgency, building a guiding coalition, empowering employees through training, and consolidating gains for long-term success.

In PT API's case, the absence of a comprehensive training program on SAP or inventory software is a major barrier. Employees who are expected to use the system lack confidence, and many do not fully understand how their roles fit into the broader digital strategy. A study by Laudon and Laudon (2020) supports this, asserting that training and employee engagement are critical components of effective IT adoption in public and private sectors.

Leadership also plays a vital role in change management. Leaders must serve as champions of digital transformation, consistently advocating for the benefits of the new systems and addressing concerns raised by staff. They must also ensure that digital tools are not seen as burdensome add-ons, but as enablers of operational efficiency.

To mitigate resistance, PT API should implement a staged digital transition plan that includes stakeholder engagement sessions, department-level workshops, and continuous technical support. By involving end-users in the implementation process and demonstrating early wins, the organization can build trust and ensure long-term success of the inventory modernization effort.

3.2.6 Best Practice Recommendations

To address the identified inefficiencies in PT API's inventory management system, a set of best practice recommendations is crucial for ensuring long-term sustainability, accuracy, and cost-effectiveness in handling ATK (*Alat Tulis Kantor* or office supplies). These recommendations align with industry standards and are supported by academic literature on supply chain management, digital systems, and organizational behaviour.

First, creating a centralized dashboard, either integrated with SAP or a tailored inventory management system, is vital. A centralized dashboard offers real-time visibility over stock levels, request approvals, and spending across departments. According to Laudon and Laudon (2020), integrated information systems help organizations achieve transparency and enhance operational coordination. When such dashboards are embedded within the broader SAP ERP system, it promotes consistent data flow between procurement, finance, and warehouse units. Furthermore, it allows managers to track usage patterns and make informed decisions, ultimately reducing overspending or underutilization.

Second, empowering the Asset Department with the authority and tools for real-time decision-making ensures agility in operations. When this department has access to real-time data and system permissions to authorize procurement or transfer of goods, delays are minimized. This also reduces bureaucratic friction. According to Stevenson (2021), empowering operational-level managers with accurate, timely data contributes to faster supply chain responses and better stakeholder coordination. Training and equipping the team with barcode scanners, inventory tablets, and role-based SAP access would streamline operations and improve accountability.

Third, redesigning Standard Operating Procedures (SOP) is essential. The current SOPs appear fragmented, with manual paperwork slowing down operations and increasing the risk of human error. The new SOP design should be oriented toward lean management principles—eliminating non-value-adding steps, automating routine approvals, and clearly defining roles

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and responsibilities. As Heizer et al. (2020) suggest, well-structured processes reduce lead time and variability, both of which are essential for ATK supply chains that handle large volumes with relatively small unit value.

A fourth recommendation is to implement inventory thresholds and auto-replenishment alerts. Setting minimum and maximum stock levels for essential office supplies, combined with an automated notification system, ensures timely restocking without over-purchasing. As noted by Chong and Bai (2014), inventory automation not only reduces stockouts but also improves working capital efficiency by preventing excessive stockpiling. Such thresholds should be calibrated monthly based on actual consumption data to stay responsive to fluctuating demand.

Finally, introducing performance metrics and review mechanisms can support continuous improvement. Key indicators such as order fulfilment time, stock discrepancy rate, and request turnaround duration should be monitored through the dashboard. Monthly or quarterly reviews can help ensure that the system adapts to changing operational realities.

3.2.7 Long-term Impact Projections

Implementing the above best practices can lead to profound long-term improvements in the procurement and inventory control of ATK at PT API. The transition toward a digitized, transparent, and responsive system is expected to have several positive effects.

One of the most significant impacts is enhanced traceability and spending visibility. By capturing digital records of every request, approval, and stock movement, the organization can better audit its procurement processes. This traceability reduces fraud risks, enables historical usage analysis, and simplifies reporting for compliance purposes. As noted by Monk and Wagner (2013), visibility across the procurement lifecycle leads to more strategic decision-making, especially in budget-constrained public service environments.

Secondly, staff satisfaction is likely to increase, as delays in ATK procurement have been a recurring source of frustration among employees. By reducing turnaround times and clarifying procedures, the new system promotes a more efficient and less stressful workplace. The introduction of automation also alleviates the workload of administrative staff, allowing them to focus on higher-value tasks. According to Kotter (2012), when employees perceive improvements in efficiency and autonomy, their engagement and satisfaction increase.

The final projected benefit is a notable gain in operational efficiency over a five-year period. Based on industry case studies and academic modelling (Chong & Bai, 2014), companies implementing real-time inventory control and centralized dashboards often report between 20%–35% improvement in procurement processing times and a reduction of 15%–25% in waste or redundant purchases. For PT API, this could translate into substantial financial savings and improved resource allocation, especially across multiple airport branches with varying inventory demands.

The strategic application of technology, process redesign, and empowered governance can transform PT API's ATK inventory management from a fragmented manual system into a modern, resilient, and efficient backbone that supports the broader goals of the organization.

4. Conclusion

This study reveals the critical need for PT API to move away from fragmented procurement and inventory practices toward a centralized, integrated system. The manual inventory controls and inconsistent budgeting processes result in procurement delays, unclear spending visibility, and frequent stock mismanagement. By adopting best practices like centralized dashboards, barcode-enabled FIFO systems, and SAP-linked budget thresholds, the organization can significantly enhance data accuracy and decision-making efficiency.

The insights from employee surveys highlight both resistance to digital tools and frustrations stemming from SOP rigidity. These findings suggest a need for comprehensive change management strategies and targeted training programs. Applying Kotter's (2012) model of organizational change, leadership must drive transformation through clear vision, empowerment, and short-term wins.

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Digitalization offers long-term benefits, including real-time visibility of ATK usage, minimized budget slippage, and increased employee satisfaction. If effectively implemented, the digital system can lead to operational savings and traceability improvements projected at over 30% efficiency gains within five years.

However, integration between inventory and financial planning remains underutilized. Lessons from other state-owned enterprises show that aligning SAP Inventory and Finance modules reduces over-purchasing, improves transparency, and limits unauthorized spending. Without such alignment, PT API risks continued inefficiencies and diminished accountability.

In summary, success hinges not just on systems, but on leadership commitment, SOP redesign, and a shared institutional mindset prioritizing transparency, responsiveness, and proactive planning.

This analysis underscores how legacy inventory practices at PT API hinder operational efficiency. The manual ATK system contributes to redundant stockpiling, delayed procurement, and unclear budget accountability. Integrating inventory with finance modules, as recommended by Monk and Wagner (2013), is crucial for ensuring budget discipline and procurement timeliness.

Survey and interview feedback further emphasize user dissatisfaction with current workflows and tools. Digital reluctance stems from a lack of training and perceived complexity. A key success factor will be addressing change resistance by using structured training and involving users early in the transition process.

Best practices—including threshold-based auto-replenishment, real-time dashboards, and SAP linkage—offer high-impact, low-risk improvements. These tools would allow the Asset Department to make informed decisions quickly while reducing dependency on multiple layers of approval.

Long-term projections suggest that such upgrades can lead to increased traceability, faster procurement cycles, and improved staff satisfaction. Realistically, these benefits could manifest as a 20–35% increase in operational efficiency, especially in ATK distribution and usage control.

For PT API to achieve digital maturity, leadership must commit to continuous evaluation, process standardization, and a phased digital transformation. The potential payoff—both financially and in human resource terms—is considerable and justifies the effort.

The findings demonstrate a recurring challenge in PT API's current system: a disconnect between financial planning and operational execution. When inventory requests are made without clear budget visibility or approval status, procurement becomes reactive and disorganized. This contributes to over-ordering, stockouts, and ultimately undermines service delivery.

Digital transformation presents a solution, but must be approached strategically. Case comparisons with similar Indonesian SOEs reveal that integrating budgeting and inventory control within SAP ensures consistent data flow and transparent spending. Moreover, by centralizing SOP procedures and granting the Asset Department real-time access and authority, delays can be significantly reduced.

Key employee insights from surveys show a growing demand for clear, responsive systems. However, digital resistance remains an obstacle. Kotter's (2012) principles offer a roadmap for overcoming this: establishing urgency, forming coalitions, and institutionalizing change through training and quick wins.

Investment in barcode systems, automatic alerts, and simplified SOPs can bridge theory and practice. With appropriate implementation, PT API could avoid millions in inefficiencies while enhancing service levels.

Ultimately, the integration of budget control with inventory must be treated not merely as a technical upgrade, but as a strategic imperative essential to future competitiveness and public accountability.

This study offers compelling evidence that PT API must reform its ATK inventory system through digital transformation and procedural realignment. The manual approach is no longer viable in an era where real-time data and agile responses are necessary for operational excellence.

Core problems—like poor FIFO adherence, procurement lags, and budgeting ambiguity—can be traced to outdated systems and fragmented SOPs. The theoretical benefits of centralized systems, as supported by Heizer et al. (2020) and Stevenson (2021), include better stock rotation, accurate budgeting, and greater interdepartmental coordination.

Staff feedback reveals both challenges and readiness: while there is resistance to SOP changes and new tools, there is also strong recognition of inefficiencies in the current system. Addressing this through structured digital training and leadership engagement is vital.

The recommendations—including centralized dashboards, SAP enhancements, and alert-based threshold systems—can yield major improvements in accuracy, speed, and accountability. The five-year projection anticipates substantial reductions in procurement delays, increased staff confidence, and better visibility of ATK-related spending.

To conclude, PT API stands at a critical inflection point. Embracing data-driven inventory and budgeting systems will not only streamline operations, but also establish a foundation for sustainable growth, stakeholder trust, and public service excellence.

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