

Enhancement of Inventory Management System of State Universities and Colleges in Mountain Province

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ABSTRACT

This qualitative research critically investigates the inventory management systems utilized by State Universities and Colleges (SUCs) in Mountain Province, revealing a significant gap in operational efficiency due to outdated processes and technologies. Employing a descriptive research design, the study systematically evaluates the limitations and challenges within the current framework of the Supply and Property Management Office (SPMO). The analysis uncovers substantial inefficiencies caused by manual procedures and obsolete technological tools, which hinder the institution's ability to effectively manage and allocate resources. The research identifies the urgent need for a modernized approach, advocating for integrating advanced digital technologies to optimize procurement, inventory tracking, and resource distribution. The proposed interventions aim to minimize errors, reduce operational delays, and enhance overall cost-efficiency, resulting in a more responsive and sustainable inventory management system tailored to the evolving needs of SUCs.

INTRODUCTION

An inventory control system is responsible for maintaining and controlling goods to be stocked. It provides an organizational structure and operating policies for ordering and receiving goods. The system ensures timely order placement while tracking what has been requested, how much, and from whom. It also follows up to answer important questions such as: Has the supplier received the order? Has it been shipped? Are the dates correct? The system also establishes procedures for reordering or returning undesirable merchandise (Jacobs and Chase, 2021). Managing inventories is one of the critical responsibilities that every organization needs to do carefully.

Munyaka and Yadavailli (2022) define inventory as a foundation of supply chain management and logistics in the material management system. The role of inventories in a company's financial performance, operational efficiency, and customer satisfaction needs to be understood by all organizations to have the right balance when achieving strategy objectives (Collier and Evans, 2021). Chopra (2019) likewise emphasized that inventory plays an important role in the supply chain as it is created to address the gap between supply and demand. This gap can be intentional in the case of a steel manufacturer, where it is more cost-effective to produce items in large quantities that are then stored for future sales. Similarly, retail stores hold inventory in anticipation of unknown future demand. In both cases, inventory is maintained to lower costs or increase the availability of products.

Although many organizations have been using digitized inventory management, many still manage their inventory manually. The reason is the lack of a warehouse mentioned above management system or its inflexibility and inadequacy for the company. To address this problem, there should be an operational process that can respond instantly to customer demand and deliver the perfect result without any delays or complex inventory management processes (Macbeth, 2019). In a study by Diana et al. (2019), it was emphasized that implementing a computerized inventory system can greatly benefit shop owners. An inventory information system makes it easier to track stock levels in the warehouse and conduct calculations to predict future expenses. This helps stores make informed decisions about ordering goods from suppliers.

An inventory management system is implemented by State Universities and Colleges (SUCs) such as the Mountain Province State Polytechnic College. The College is the lone SUC in Mountain Province which has two (2) campuses namely: Bontoc and Tadian Campus and the Supply and Property Management Office (SPMO) which is located in Bontoc Campus is primarily tasked with carrying out this inventory management. The SPMO largely controlled all decisions related to inventory. The flow of inventory and issuances, reports, and forms are maintained by the SPMO and are prepared, submitted, and reconciled with the Accounting Unit.

THEORETICAL REVIEW

Businesses dealing with inventory management have access to numerous web applications for managing products and stock (Chan et al., 2023). Inventory management shall require an information system that provides appropriate

data concerning quantities of inventories in stock and the predicted arrival of replenishing supplies. An inaccurate inventory record creates uncertainty, which means that companies are obliged to store more safety stocks. Several factors influence the accuracy of inventory records. Each item must be properly and promptly entered into the system when received or processed (Swink et al., 2020).

Slack and Brandon-Jones (2019) stated that computer systems manage most warehouses of significant size. Many of the relatively routine calculations involved in inventory management allow for computer-based support. This is especially true as data capture has become more convenient using barcode scanners and recording of sales transactions. Using inventory management systems that can generate regular inventory reports can help management monitor the performance of inventory controls. Likewise, customer service performance can be regularly monitored, such as stockouts or the number of uncompleted orders. Some reports may be prepared on an exceptional basis. In other words, a report is generated only when any performance indicator deviates from acceptable limits.

One study of the inventory management system developed for inventory management for a company operating in Indonesia was produced to reduce errors in inventory reporting and streamline the process of placing products related to incoming and outgoing goods transactions. The researcher included a simple functionality of the system, whose overall functionality is a view of inventory information, including a product-specific report by time and a form template to manage inventory information. According to the conclusion of the study, the system enables to generate of reports that support the mission of providing fast and accurate service (Pasaribu, 2021).

Savitha (2023) also introduced a system that consists of several modules such as the purchase and sales module, stock availability module, or control module that can enable managers to monitor inventory levels effectively. She identified that the stock availability module provides real-time reports on the level of inventory and movement, while the purchase and sales module enable managers to see where products come in and out of a sea store. The functionality of this system is that the reporting module provides a useful insight into inventory management by generating real-time reports on the quantities of goods, sales, and purchase data as well as supplier success. To implement a stock availability management system, the ship store must be fitted with reliable inventory management software consisting of all these components. The software option shall adapt to the particular requirements of the ship business, to be able to cope with them. With the aid of a robust stock availability management system, that ship-shop may optimize its inventory levels, reduce costs, and increase client satisfaction. The purchase and sale module, stock availability, or report modules can be used by managers to make sensible choices about the management of inventory, purchases, and sales.

Chan et al. (2023) have proposed and developed an inventory management system that aims to provide free software that can be used by small to medium retail store that still manages inventory manually in Malaysia.

This system helps a retail store to track down the next arrival of product stocks and record customer orders for reservations for the product in the store inventory. Overall, the inventory management system achieved the general inventory management activities.

Bautista and Young (2022) proved in their study that there is a significant relationship between all components of the re-ordering system, including the re-ordering point (ROP), desired inventory level, safety stocks, replenishment cycle, anticipated lead time, and truckload optimization. The research concluded that the re-ordering system template could help achieve the desired inventory level at sales stations, and the paper introduced a truckload optimization model to determine the optimal truckload per delivery trip. Likewise, their study resulted in the development of an effective Inventory Management System that improved the efficiency of Supply and Distribution Management for a food seasoning product manufacturer in the Philippines.

According to a study by Odasco and Saong (2023), majority of their respondents are well-versed in the various processes associated with using UBRPIS. These processes include requesting non-consumable items, utilizing barcodes, transferring accountability, withdrawing condemned non-consumable items, and conducting a physical inventory of accounted non-consumable items. However, almost half of the respondents identified limitations within the process, with 38.60% and 46.50% pinpointing the location of barcodes and the lack of non-consumable items as the primary issues, respectively. Despite the users' familiarity with the system, they encounter challenges in the associated processes. Consequently, the study recommends that the University invest in inventory management system technology that aligns with the needs of all system users. Additionally, periodic staff training on the utilization of UBRPIS is highly recommended.

Similarly, Apil (2019) concluded that respondents agreed that the Benguet Water District faces several challenges in its inventory management system. These include stringent procurement processes, inaccurate demand and supply projections, an outdated inventory management system, insufficient inventories, and low to zero stock balance due to non-delivery or delayed delivery. Additionally, materials and supplies are often located in areas that are difficult to access, such as offsite or restricted areas within the warehouse.

Conceptual Framework

According to the Government Accounting Manual (GAM) for National Government Agencies (NGA) and in the context of Mountain Province State Polytechnic College, inventories are assets that come in different forms. These include materials or supplies that will be used in the production process, such as materials and supplies that are currently waiting to be used. Additionally, inventories can take the form of materials or supplies that will be consumed or distributed when rendering services such as office supplies, ammunition, and maintenance materials. They can also be items that are held for sale or distribution in the course of regular operations, such as merchandise purchased by an entity or land and other property held for sale, or agricultural produce.

Lastly, inventories can consist of goods that are currently in the process of being produced for sale or distribution to other parties, such as educational books produced by a health authority for donation to schools.

In procurement, MPSPC, as the procuring entity, shall adopt the 2016 Revised Implementing Rules and Regulations of the Republic Act 9184, otherwise known as the Government Procurement Reform Act. All procurement of supplies, materials, and equipment must be planned meticulously and judiciously within the College's approved budget. The departments and offices shall prepare their Project Procurement Management Plan (PPMP) and submit it to the Budget Office for evaluation to ensure compliance with budgeting rules and consistency with the budget proposal. When the budget call is issued for SUCs, the College must prepare its indicative Annual Procurement Plan (APP) for the following calendar year. The proposed PPMPs shall then be consolidated into an indicative Annual Procurement Plan by the Bids and Awards Committee (BAC) Secretariat and recommended for appropriate procurement modality by the Bids and Awards Committee (BAC). As soon as the General Appropriations Act (GAA), corporate budget, or appropriation ordinance, as the case may be, becomes final. The indicative APP shall be revised and approved and shall be submitted to the Government Procurement Policy Board (GPPB) on or before the end of January of the budget year and shall be posted per E.O. 662, series of 2007, as amended. Hereafter, the basis of procurement of such items is the approved and final Annual Procurement Plan (APP). The Bids and Awards Committee/Procurement Services is the responsible office for preparing the Purchase Request, Purchase Order, and other documents necessary for the procurement of such items.

The National Government Agencies (NGA) including SUCs use an Inventory Accounting System to monitor, control, and record the acquisition and disposal of inventory. The system begins with the receipt of purchased inventory items. When the Supply and Property Management Office determines that the items are unavailable in stock, the requesting office prepares and obtains approval for a Purchase Request (PR) (Appendix 60 of the GAM). Based on the approved PR and after completing all the necessary procurement procedures, the agency issues a duly approved Contract or Purchase Order (PO) (Appendix 61 of the GAM).

As per the Government Accounting Manual (GAM) for NGA including SUCs, supplies and materials bought for inventory purposes should be recorded using the perpetual inventory system. This ensures more accurate inventory records and a running total of the cost of goods sold in each period. The system requires accurate accounting records to constantly show the amount of inventory on hand. This is accomplished through the Stock Ledger Card (Appendix 57 in the GAM), which is used by the Accounting Division/Unit. It is a form used to record all receipts and issues for each type of supply. The Stock Ledger Card should be maintained by the fund cluster. On the other hand, the Supply and Property Management Office should use the Stock Card (SC) (Appendix 58 in the GAM) to record all receipts and issues for each type of supply. This record should also be maintained by the fund cluster.

Regular purchases should be processed through the inventory account. Any issues should be recorded as they occur, except for supplies and materials purchased out of Petty Cash Fund for immediate use or in emergency cases. These shall be charged directly to the appropriate expense accounts.

The Existing Inventory Management System of MPSPC

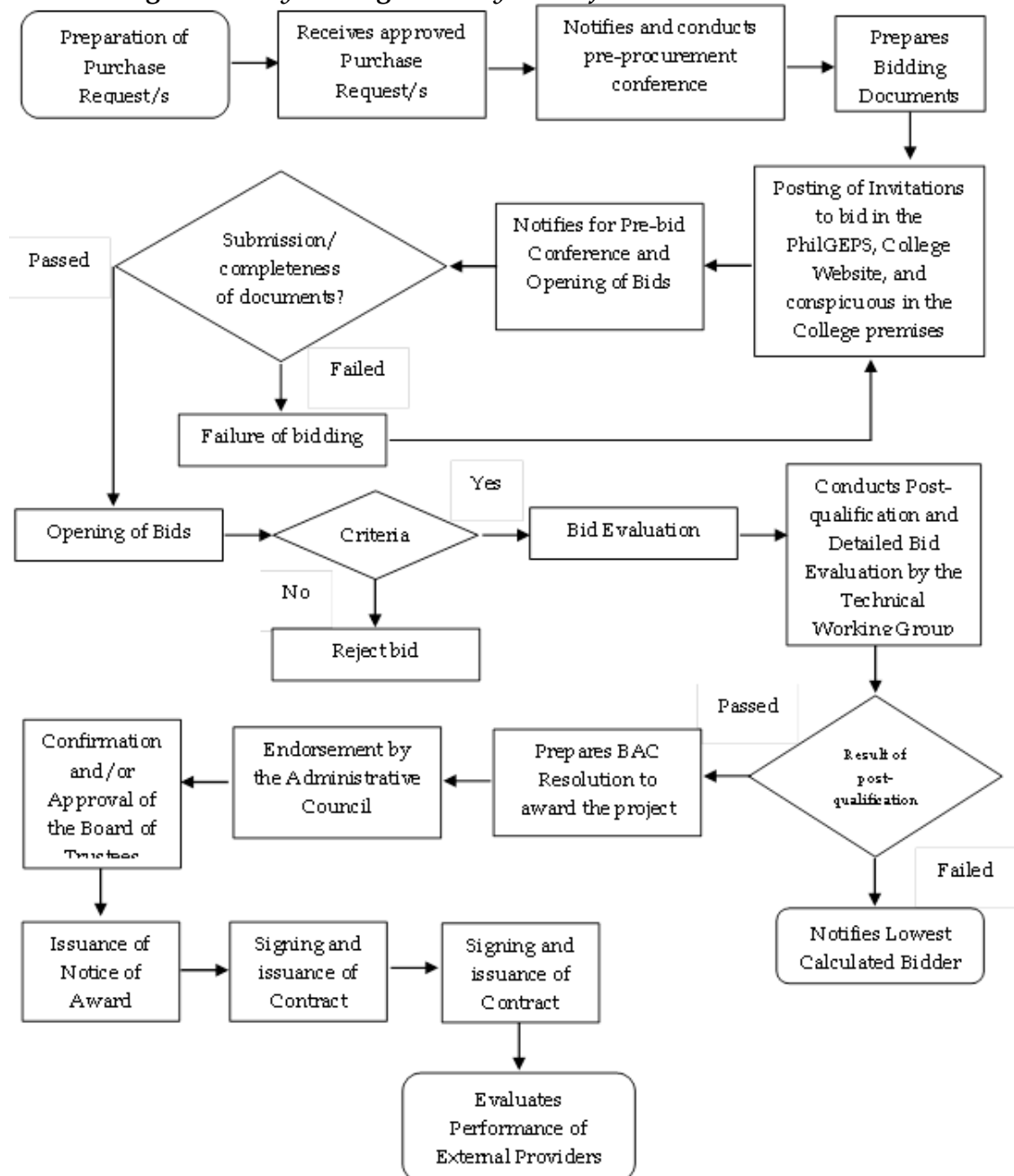


Figure 1

Procurement of Supplies, Materials, and Equipment through Public Bidding

Figure 1 illustrates the process of procuring supplies, materials, and equipment through public bidding as the default mode of procurement as prescribed in the Revised Implementing Rules and Regulations of R.A. 9184. This process is also in line with ISO 9001: 2015 Quality Management System of MPSPC. The Procurement Services initiates Purchase Requests for contracts exceeding ₱1,000,000, requiring approval by the College President. Smaller

procurements may bypass pre-procurement conferences amounting to 2 million and below for Goods, 5 million and below for Infrastructure Projects, and 1 million and below for Consulting services. Pre-procurement conferences are mandatory to ensure procurement readiness, including confirming funds and reviewing documents. Bidding documents and an invitation to bid are posted for seven days, followed by the opening of bids. The Lowest Calculated and Responsive Bid (LCRB) is selected, and in case of failure, the process is reassessed and repeated if necessary. Post-qualification and detailed bid evaluations are conducted by the Bids and Awards Committee (BAC) and other relevant parties. If the LCRB fails, the next lowest bid is considered. The BAC Resolution recommending the award is submitted for approval, with contracts over ₱25 million endorsed for approval of the Governing Board. The winning bidder receives a Notice of Award, Contract Agreement, and Notice to Proceed, with contracts posted on official platforms. Supplier performance is evaluated for future reference. Alternative procurement methods are also employed, as per the 2016 Revised IRR of R.A. 9184.

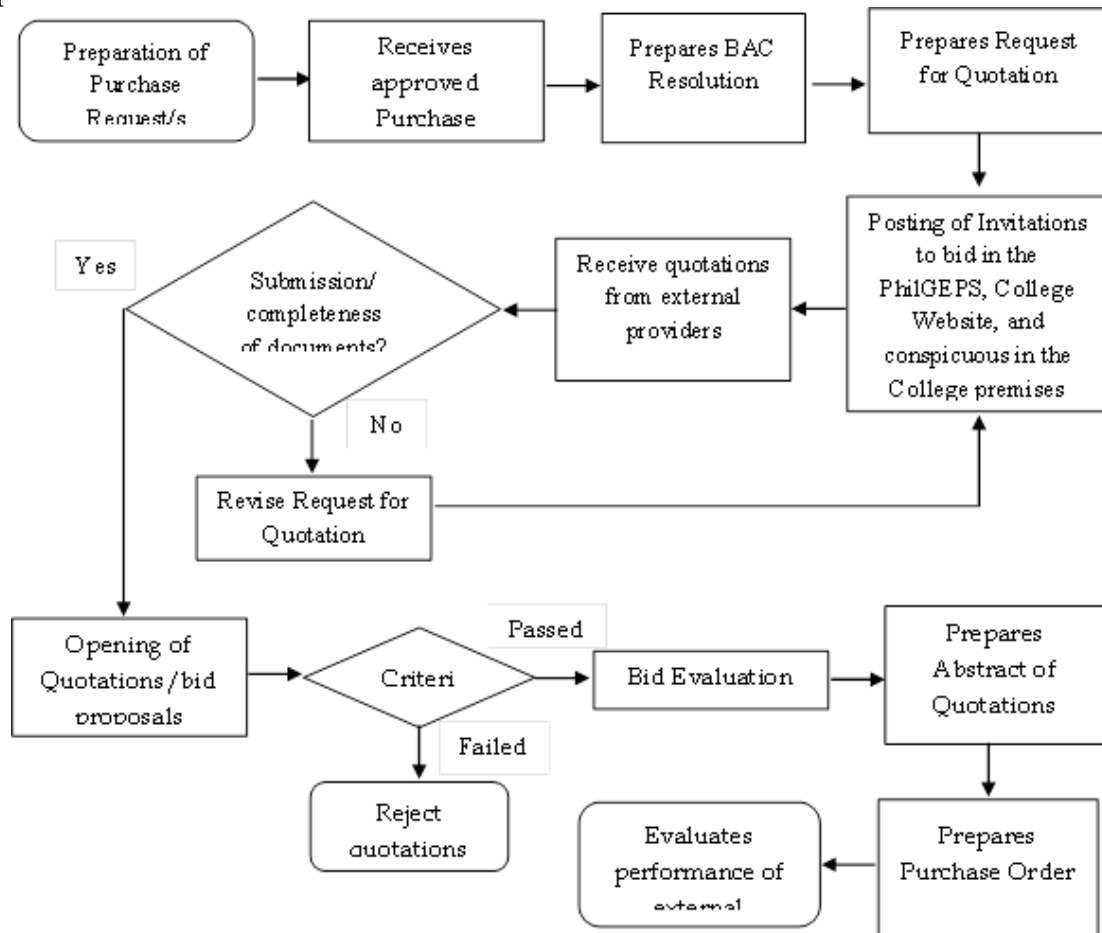


Figure 2
Procurement of Supplies, Materials, and Equipment through Alternative Methods

Figure 2 outlines the procurement process for contracts with an approved budget below ₱1,000,000, following the Revised IRR of R.A. 9184 and ISO 9001:2015 standards. The BAC Secretariat facilitates the BAC meeting to determine the appropriate alternative procurement method. A BAC Resolution is prepared, and a Request for Quotation is posted for three days on the PhilGEPS website, the College Website, and at prominent locations within the College.

Sealed quotations are submitted by bidders and reviewed by the BAC, which selects the lowest calculated bid for awarding. In the case of a failed bidding, the PR and Request for Quotation are revised and reposted. A Purchase Order is prepared, approved by the HoPE, and sent to the Budget and Fiscal Planning Office for Obligation. The Supply and Property Management Office (SPMO) issues the Purchase Order to the supplier, with the finalized order posted on the PhilGEPS and College websites. The BAC Secretariat oversees the evaluation of suppliers' performance for future procurement.

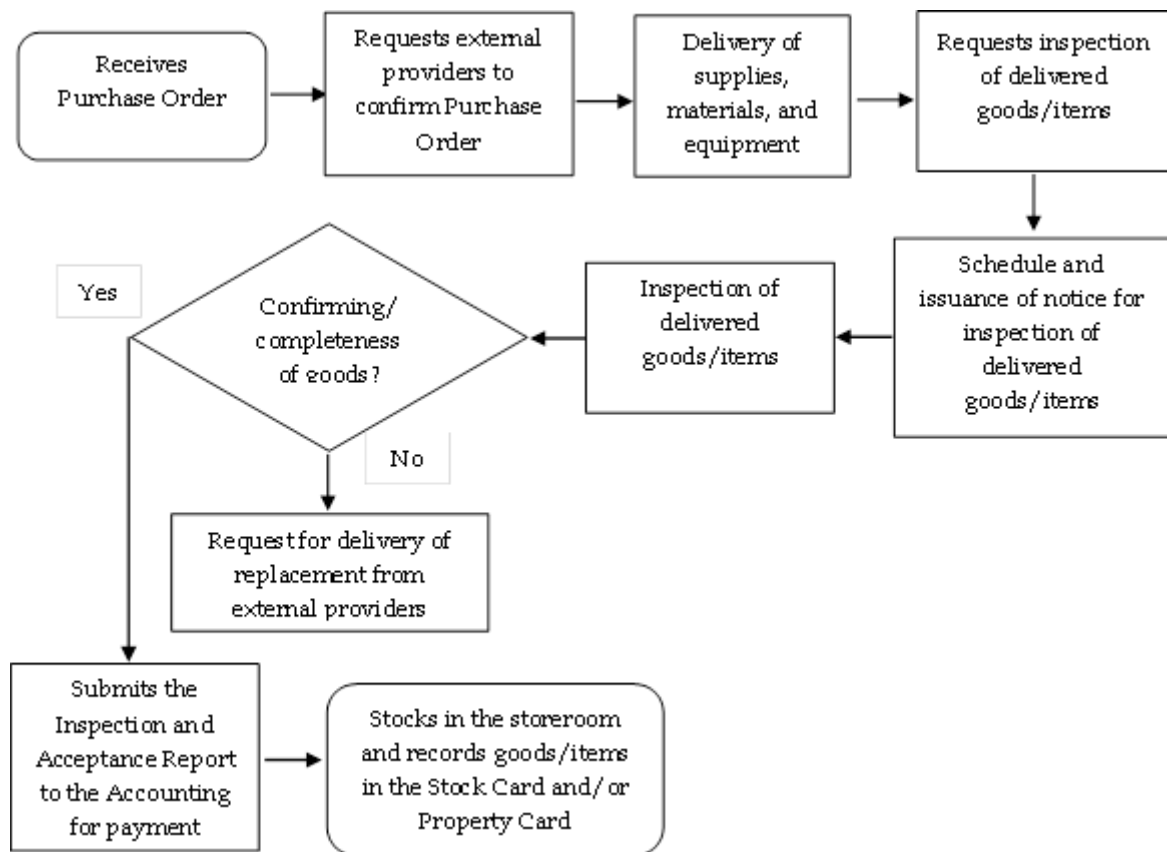


Figure 3
Receipt of Supplies, Materials, and Equipment

Figure 3 details the process for receiving supplies, materials, and equipment, overseen by the Supply and Property Management Office (SPMO). The process begins with the SPMO receiving procurement documents, including the Purchase Order, from the Accounting Unit. Suppliers are responsible for delivering the items as specified in the Purchase Order. Upon delivery, the SPMO staff requests the Inspection Committee to inspect the

goods. The inspection results are documented in the Inspection and Acceptance Report (IAR), as per the Government Accounting Manual (GAM). If items do not match the order, a replacement is requested from the supplier. The IAR and related documents are then sent to the Accounting Unit for payment, and the items are recorded in the Stock or Property Card. The process concludes with the SPMO Director's acceptance, initiating property custodianship. Custodianship, a key function of the SPMO, involves managing government property by ensuring proper receipt, safekeeping, issuance, repair, and maintenance. SPMO officers are accountable for any loss, misuse, or damage to property. Inventory Taking, another critical task, involves recording physical counts, weighing, and measuring supplies, materials, and equipment. All inventory actions must be recorded according to COA Circular No. 006, s. 2020, ensuring that stock and property cards are accurately maintained for monitoring purposes.

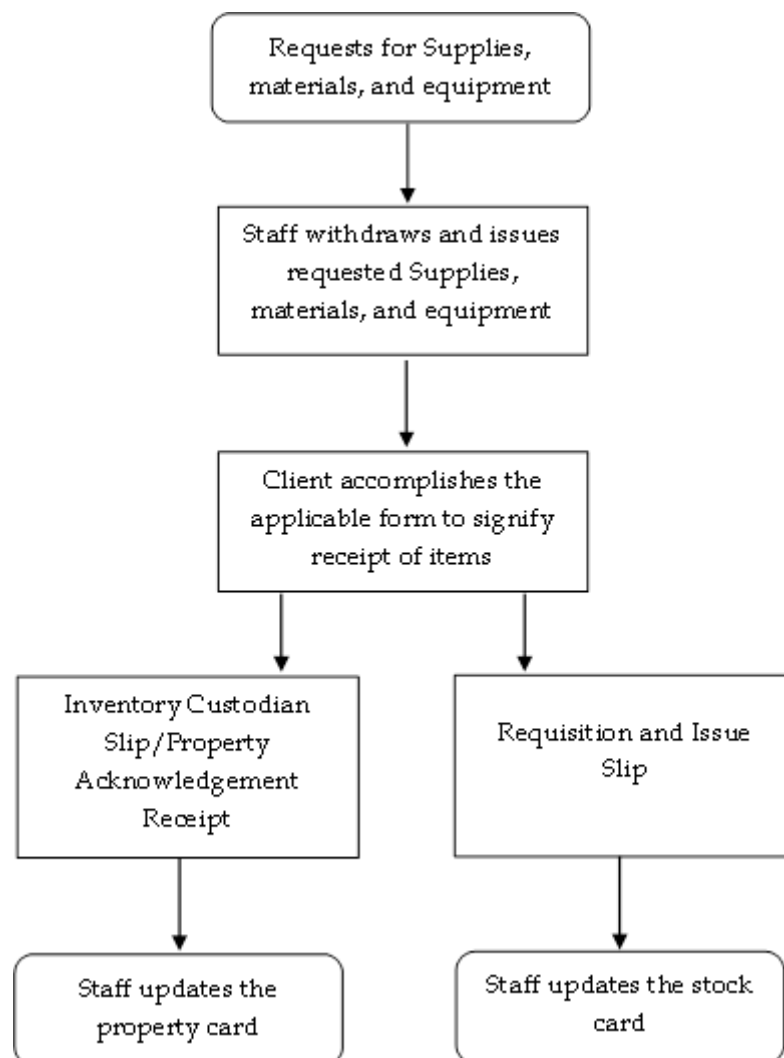


Figure 4
Issuance of Supplies, Materials, and Equipment of Supply and Property
Management Office of MPSPC

In Figure 4, the process of issuing supplies, materials, and equipment is illustrated per the Government Accounting Manual for National Government Agencies (NGAs). During this process, the SPMO staff will withdraw and issue the requested supplies, materials, and equipment from the warehouse. Subsequently, the client will complete a form to acknowledge the receipt of items. Finally, the SPMO staff will manually record the issued supplies, materials, and equipment into the stock or property card.

The COA Handbook similarly defines Issuance as transferring the custodianship of a property from one person to another. Thereby, issuance by the SPMO to the requesting office and/or personnel. The office will issue documents to prove that a transaction was made, comprising three (3) issuance document forms: a. Requisition and Issue Slip (RIS), b. Property Acknowledgement Receipt (PAR), and c. the Inventory Custodian Slip for materials classified as Low Value and High Value or Semi-Expendable Equipment. These forms are Appendix 63, Appendix 71, and Appendix 59 respectively, of the Government Accounting Manual for National Government Agencies Volume II using the Stock Card and Property Card.

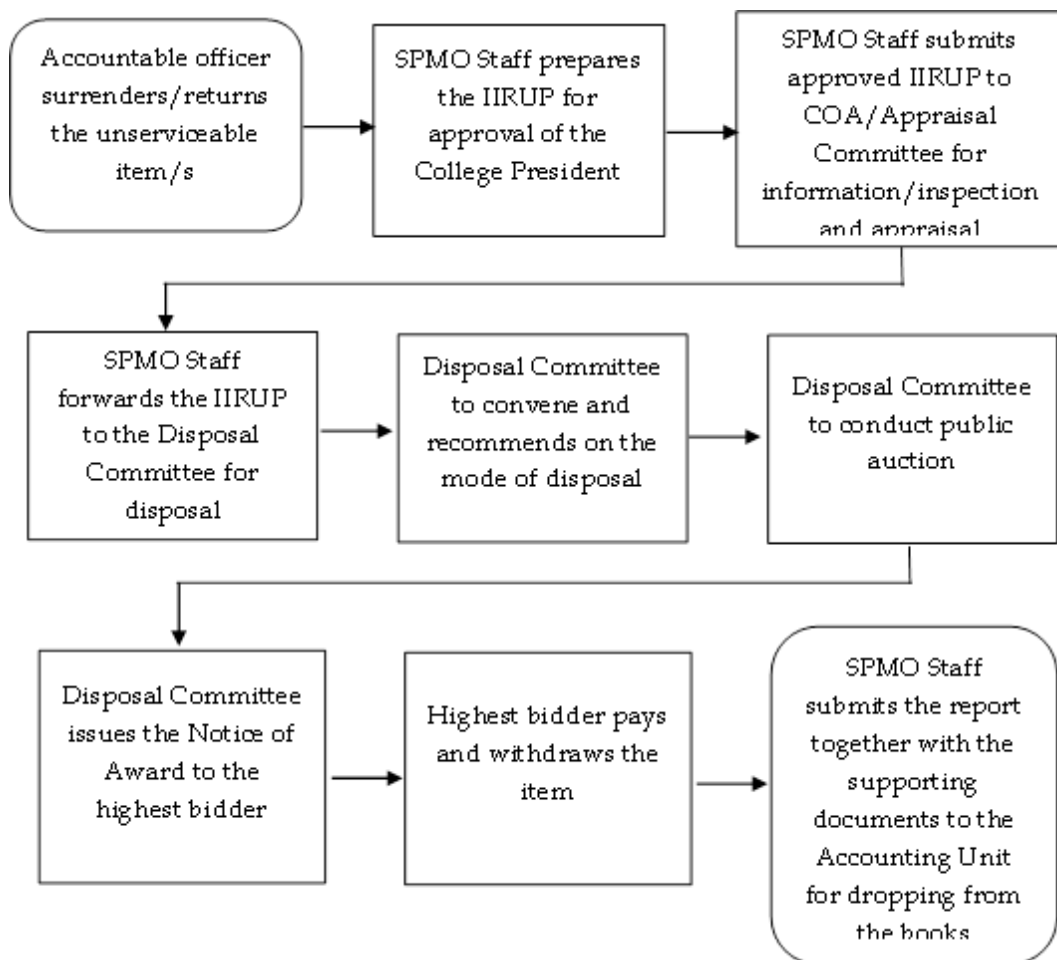


Figure 5
Disposal of Unserviceable Supplies, Materials, and Equipment

Figure 5 is the process of disposal of unserviceable supplies and equipment. This process starts when an accountable officer immediately returns the unserviceable material/ equipment for proper disposal. If the returned items can still function, the SPMO staff reissues these items to the interested offices. Items that have exhausted their useful life or are deemed unserviceable are then segregated. The SPMO Staff forwards hazardous materials to the General Services Office for proper waste disposal and the rest are placed in the SPMO Stock Room for unserviceable and recorded to the master list of unserviceable materials/equipment. The SPMO Staff forwards the Report of Inventory of Unserviceable Materials and Equipment to the Appraisal Committee for them to determine the value of the items to be disposed of while the Disposal Committee applies the disposal to the Top Management. Unserviceable properties that are found valuable are auctioned to the highest bidder and the rest will be destroyed. The Disposal Committee accomplishes an Inventory Report of Waste Materials upon disposal of property and forwards it to the Accounting Unit for dropping from the books.

METHODOLOGY

Research Design

This descriptive research study evaluates the inventory management system at MPSPC. The study utilizes qualitative data collected through structured interviews and document analysis to provide a detailed assessment of current practices. This approach allows a deeper understanding of the nuances and experiences related to inventory management systems. The interview aims to gather insights and perspectives from key personnel engaged in the inventory management system of MPSPC. Through this interview, the study understands the challenges faced by the key personnel in managing their services and clients, as well as their expectations and requirements for an inventory management system solution. The discussion probes into the current workflow, pain points, and areas for improvement in their operations. Additionally, it explored how an inventory management system can streamline processes, enhance communication, and improve overall efficiency for the personnel involved in the IMS in MPSPC.

Population and Locale of the Study

The study was conducted at Mountain Province State Polytechnic College, consisting of two (2) campuses: Bontoc and Tadian which is composed of 259 permanent faculty and staff. Purposive sampling was employed to comprise the sample. The focus was on the Finance Division including the Supply and Property Management Office (SPMO), responsible for managing the college's inventory. These individuals play a crucial role in providing feedback on the functionality and effectiveness of the inventory management system. The target respondents are identified by the researcher based on their involvement in the inventory management system. Their participation provides a comprehensive understanding of how the system works in real-world scenarios, allowing the

researcher to gather valuable feedback and suggest improvements for effective service delivery.

Data Gathering Tools

Data were collected through structured interviews with key personnel in the Finance Division, including the SPMO Director and staff. Additionally, relevant inventory management documents and records were analyzed to gain insights into current practices. These respondents are directly related to the Inventory Management System to seek and provide the most relevant answers and ascertain information regarding the existing inventory management system of MPSPC and factors affecting its effective implementation. The number of selected populations for the interview was ten (10) composed of five (5) Administrative Staff from the Supply and Property Management Office including the Director for SPMO, one (1) each from the Procurement Services, Budgeting and Fiscal Planning, Accounting Services, Office of the Chief Administrative Officer, and VP for Administration and Finance. The researcher personally visited each office for the conduct of the interview and asked about their availability and their willingness to be interviewed.

Data Gathering Procedure

Structured interviews were conducted to gather detailed information on current inventory management practices. Relevant documents, including procurement records and inventory logs, were collected and analyzed. Data were categorized and analyzed to identify key themes and areas for improvement.

Treatment of the Data

Qualitative data were analyzed using thematic analysis to identify patterns and themes related to inventory management practices at MPSPC. The findings were then compared with best practices in the literature to formulate recommendations.

Ethical Considerations

Informed consent was obtained from all participants, ensuring confidentiality and anonymity. The data collected were used solely for research purposes, and ethical standards were maintained throughout the study

RESULTS AND DISCUSSION

The research explored the various factors influencing the effectiveness of the existing Inventory Management System (IMS) at Mountain Province State Polytechnic College (MPSPC). Through thematic analysis of qualitative data, several critical themes emerged, each shedding light on the strengths and challenges of the current system.

Roles and Responsibilities: The roles within MPSPC's IMS are varied and encompass a broad range of tasks, encompassing physical inventory assistance, record-keeping, disposal committee participation, issuance of supplies, materials, and equipment, manual updating of stock cards, assisting in the inspection of

delivered supplies and equipment, procurement planning, end-user participation, overseeing the entire process and over-all supervision of the IMS of MPSPC. According to the study by Islam et al. (2019), employees managing inventory lack formal or informal training, resulting in decreased competency. Thus, each role and responsibilities are crucial for maintaining the IMS which has a great impact on the organizational performance of the organization.

Manual System: A significant issue identified was the predominantly manual nature of the IMS. Despite being familiar with the system, participants expressed concerns over its reliance on manual processes, which are time-consuming and prone to errors. The absence of a computerized system complicates tasks, especially when dealing with simultaneous deliveries, leading to inefficiencies and delays in updating records and submitting reports. The frustrations voiced by participants highlighted the pressing need for technological advancements to replace outdated manual methods. Similar findings like the inventory management system utilized in the Sin Guan Leong grocery is categorically inconvenient and inefficient due to its current manual process, as concluded by Low and Mat Rejab (2022). A study conducted by Arasa and Achuora suggests that supermarkets in Nairobi County, Kenya should consider implementing e-inventory management systems and practicing activity-based costing. Doing so can help improve their performance by reducing operational costs and enhancing inventory control.

Operational Inefficiencies: The study revealed several operational inefficiencies that exacerbate the challenges within the IMS. These include partial deliveries, limited manpower, and significant difficulties in tracking issued materials and synchronizing unserviceable inventory. These inefficiencies not only delay processes but also lead to data inaccuracies, complicating the audit process and placing additional burdens on staff. The need for organizational training and improved coordination was underscored as essential to overcoming these obstacles. According to Muchaendepi et al. (2019), it is imperative to prioritize the development of professionalism and education in inventory management to elevate the knowledge, skills, and abilities of those overseeing inventories in Small and Medium Enterprises. The study by Ahmad and Zabri (2018) supports the idea that having knowledgeable personnel is crucial for effective inventory management. One of the main obstacles to adopting inventory management practices is the lack of qualified personnel who understand how to effectively handle inventory management.

Regulatory and Compliance Challenges: Compliance with existing regulations, particularly Republic Act 9184, emerged as a critical challenge. The study found that many end-users do not adhere strictly to these regulations, delaying obligating items and conducting physical inventory. This non-compliance creates significant hurdles in maintaining an efficient and effective IMS. This result is a reflection of non-compliance by personnel which affects the IMS. The term "Compliance" which refers to internal institutions established by firms to carry out delegated enforcement was emphasized in the study of Armour et al. (2018). These institutions can reduce both the incidence of misconduct and the need for socially wasteful corporate penalties. Participants

also emphasized the importance of understanding and following regulatory guidelines to avoid these issues and improve the system's performance.

Need for Technological Improvement: Participants strongly agreed upon the urgent need for technological improvements. The manual nature of the current system was identified as a major barrier to efficiency. Participants advocated for the implementation of an automated system that could streamline processes, improve accuracy in inventory tracking, and reduce the workload associated with manual record-keeping. This is supported by Wynn (2021) wherein most respondents in his study felt that the opportunity to improve the outlook on manual inventory errors and the loss of revenues depended on converting to automated inventory systems. The shift towards automation is seen as vital for modernizing the IMS and addressing the existing challenges. According to Singh et al. (2022), a computer-based inventory management system can help businesses reduce the risk of stockouts, overstocking, and other inventory-related issues that can impact the bottom line. This finding aligns with a study by Parasibu (2021) in which he developed an inventory management system in Indonesia to reduce errors in inventory reporting and streamline the process of placing products related to incoming and outgoing goods transactions. Chan et al. (2023) and Swink et al. (2020) also emphasized the critical role of advanced inventory systems, including web applications and computer systems, in improving inventory tracking and reporting accuracy. This notes that manual processes are prone to errors, underscoring the need for automation.

Ensuring Data Accuracy and Quality Management: Ensuring data accuracy and quality emerged as a central theme, with participants emphasizing the importance of rigorous manual counting, reconciliation processes, and meticulous record-keeping. The study highlighted strategies such as organized storage, sustainability of inventory policies, and diligent documentation as critical for maintaining accurate records. The need for backing up data and managing documents effectively was also stressed to safeguard against data loss and ensure consistency in inventory management practices. This result is supported by Khobragade et al. (2018) that shopkeepers need to quickly and accurately create backup inventory. This led to the development of an automation solution using desktop technology. In their study, Mulandi and Ismaili (2019) recommend that commercial state-owned enterprises in Kenya should focus on improving their Material Requirement Planning systems, particularly in their utilization for inventory scheduling, to optimize the organization's performance.

External Providers Relationships: The study underscored the importance of maintaining strong relationships with external providers, particularly suppliers. Effective communication and collaboration with suppliers are crucial for ensuring timely and accurate deliveries. Participants emphasized involving suppliers directly in inspection processes and adhering to standards such as ISO 9001:2015 to ensure quality. The research highlighted the need for clear expectations, regular performance evaluations, and feedback mechanisms to foster accountability and reliability in supplier relationships, which are essential for the smooth functioning of the IMS. In addition, more efficient management of

inventories across the entire supply chain can be achieved through better coordination between the supplier and the buyer. It is a common practice for suppliers to offer lower unit prices on orders for larger quantities as an economic incentive to buyers to purchase in larger lot sizes. The supplier benefits from sales of larger quantities by reducing per-unit order processing and setup costs and by increasing volume. The buyer benefits both from the reduced per-unit ordering costs and the lower unit price, at the cost of having to hold more inventory (Wangsa & Wee, 2020).

CONCLUSIONS AND RECOMMENDATIONS

The study on the Inventory Management System (IMS) at Mountain Province State Polytechnic College (MPSPC) has unveiled several critical insights into the system's effectiveness and areas for improvement.

1. **Role and Responsibilities:** The roles and responsibilities within MPSPC's Inventory Management System (IMS) are foundational to the institution's operational success. The tasks associated with these roles are the backbone of an effective IMS, ensuring that inventory is managed meticulously and aligns with the broader organizational goals.
2. **Manual System Limitations:** The reliance on a predominantly manual IMS has surfaced as a major barrier to efficiency. Participants expressed concerns about the time-consuming and error-prone nature of manual processes. The lack of a computerized system has resulted in operational delays, especially during simultaneous deliveries, and has complicated the task of updating records and submitting reports. This finding underscores the urgent need for technological advancements to modernize the system.
3. **Operational Inefficiencies:** The study revealed several operational inefficiencies, such as partial deliveries, limited manpower, and challenges in tracking issued materials and synchronizing unserviceable inventory. These inefficiencies not only delay processes but also contribute to data inaccuracies, complicating the audit process and increasing the workload on staff.
4. **Regulatory and Compliance Challenges:** Compliance with Republic Act 9184 and other regulations has emerged as a critical challenge within the IMS. Non-adherence to these regulations by end-users has led to delays in obligating items and conducting physical inventory. This non-compliance poses significant obstacles to maintaining an efficient and effective inventory management system.
5. **Need for Technological Improvement:** The consensus among participants highlights the urgent need for technological improvement within the IMS. The current manual system is a major impediment to efficiency, and there is a strong advocacy for the implementation of an automated system. Such a system would streamline processes, improve accuracy in inventory tracking, and reduce the workload associated with manual record-keeping.
6. **Data Accuracy and Quality Management:** Ensuring data accuracy and quality was emphasized as a central concern. The study highlighted the

importance of rigorous manual counting, reconciliation processes, and meticulous record-keeping. Strategies such as organized storage, sustainable inventory policies, and diligent documentation were identified as critical for maintaining accurate records and safeguarding against data loss.

7. External Provider Relationships: The importance of maintaining strong relationships with external providers, particularly suppliers, was underscored. Effective communication and collaboration with suppliers are crucial for ensuring timely and accurate deliveries. The research highlighted the need for clear expectations, regular performance evaluations, and feedback mechanisms to foster accountability and reliability in supplier relationships.

By implementing these recommendations, MPSPC can address the current limitations and inefficiencies within its IMS. These improvements will not only support the institution's operational success but also ensure that MPSPC remains compliant with regulations and responsive to the evolving needs of its stakeholders.

Strengthening Role Clarity and Accountability

To ensure the effective functioning of the IMS, it is essential to clearly define roles and responsibilities. This can be achieved through the development of detailed job descriptions and the implementation of role-specific training. Additionally, establishing a clear chain of command and accountability measures will ensure that each role contributes optimally to the IMS's success. Regular performance evaluations and feedback mechanisms should be introduced to monitor and enhance individual contributions to the system.

Transition to a Computerized Inventory Management System

The reliance on manual processes is a significant bottleneck to efficiency. MPSPC should prioritize the implementation of a computerized inventory management system. This system should include features such as real-time inventory tracking, automated report generation, and integration with procurement processes. The transition to a digital system will not only reduce errors and operational delays but also improve the overall accuracy and efficiency of the IMS. Integration with other institutional systems (e.g., procurement, finance) to allow for seamless data flow will help staff to acquaint themselves in terms of inventory management system practices. Comprehensive user training programs are essential to ensure smooth adoption and effective use of the new system to accommodate future growth and changing inventory needs.

Streamline Processes and Enhance Manpower

To address operational inefficiencies, MPSPC should focus on process optimization and manpower enhancement. This could involve process optimization through mapping out all IMS processes to identify and eliminate bottlenecks. Implementing lean management principles can help streamline workflows. Another is manpower enhancement by increasing staffing levels where needed and providing additional training to existing staff. Cross-training

employees can also provide flexibility in managing workload, especially during peak periods.

Strengthen Adherence to Regulations

Compliance with Republic Act 9184 and other regulations must be reinforced. MPSPC should conduct regular training sessions on regulatory compliance for all relevant personnel, including end-users, and establish a compliance monitoring team to ensure adherence to regulations throughout the inventory process. Non-compliance should be addressed promptly through corrective actions, and simplify procedures related to obligating items and conducting physical inventory to reduce the burden on staff and minimize delays.

Establish Rigorous Data Management Protocols

To maintain data accuracy and quality, MPSPC should develop and enforce standardized procedures for data entry, inventory counting, and reconciliation. Implement regular internal audits to ensure data accuracy and compliance with established protocols. Improve physical storage organization to facilitate easier and more accurate inventory counts, and develop and maintain comprehensive documentation and inventory policies to guide data management practices.

Enhance Supplier Collaboration and Accountability

Building stronger relationships with external providers is crucial for ensuring timely and accurate deliveries. MPSPC should sustain regular evaluation of supplier performance against set criteria such as delivery timeliness, accuracy, and quality of goods. Establish clear lines of communication with suppliers, including setting expectations and providing feedback on performance and develop long-term partnerships with key suppliers to foster reliability and mutual accountability.

FURTHER STUDY

As the current system is predominantly manual, a future study could investigate the design, implementation, and impact of an automated inventory management system. Researchers could examine how the introduction of such technology could address the operational inefficiencies, improve data accuracy, and ensure compliance with regulations. Furthermore, the study could explore the costs and potential return on investment (ROI) of modernizing the IMS.

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