Analysis of the Inventory Management System Towards Enhanced University Service Delivery

[1]Beverly T. Odasco & [2]Marilou M. Saong

Abstract

Inventory management is an essential component of business operations including academic institutions. Using a quantitative descriptive research design, this study analyzed the processes involved in the use of the University of Baguio Requisition, Procurement, and Inventory System (UBRPIS), a software that automates inventory management by streamlining the operations required to efficiently maintain inventory and manage recording and updating records. The paper specifically determined the employees' familiarity of the inventory management, identified the system limitations and proposed necessary adjustments and modifications. The majority of respondents are familiar with the various processes involved in the use of UBRPIS, such as the request for non-consumable items, the use of barcodes, accountability transfer, the withdrawal of condemned non-consumable items, and physical inventory of accounted non-consumable items. On the other hand, nearly half of the respondents identified limitations in the process itself, while 38.60% and 46.50% identified the location of the barcodes and the lack of non-consumable items as the primary issues, respectively. Despite respondents' familiarity with the system, users face challenges in the processes involved in system use. It is therefore recommended that the University invests in inventory management system technology that best meets the requirements of all system users. Periodic staff training on the use of UBRPIS is likewise recommended.

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About the authors:
[1]Bachelor of Science in Computer Science, Inventory Office, University of Baguio.

[2]Corresponding author. PhD in Education, Professor, University of Baguio. Corresponding email: marilousaong@e.ubaguio.edu

1. Introduction

Inventory management is an essential component of business operations. It refers to the activities of placing orders, storing inventory, using it, and releasing it as a whole. This includes the storage and processing of raw materials, parts, and finished goods. Depending on the needs of the company, there are several inventory management techniques available, each with advantages and disadvantages. Different inventory management techniques should be used depending on the sector (Guajardo et al., 2015; Atnafu & Balda, 2018; Riley et al., 2018; Fattah, et al., 2016; Sabir & Farooquie, 2018). The inventory management strategy is determined by the type of company and the services it provides. Given that each method of inventory management has advantages and disadvantages, there may not be a single ideal method. Using the most appropriate inventory management strategy, on the other hand, could be extremely beneficial (Hayes, 2022).

The most crucial guarantee of an enterprise's efficient operation is to have a single, continuous process for providing required inventories in optimal quantities and of defined quality to all systems of the manufacturing process. Before and after each processing stage, inventories are established of work objects. The efficiency of enterprise's internal and external material flow is largely determined by inventories, their placement, and their dynamic dependence on the requirements of the following phases of manufacture (Viktorovna & Ivanovich, 2016).

This study discussed the processes involved in the University of Baguio Requisition, Procurement, and Inventory System (UBRPIS), the inventory management system at the University of Baguio. It specifically determined employees' familiarity of the system based on age, job classification, and years of experience. It also acknowledged UBRPIS' limitations and recommended necessary adjustments and modifications in all areas for the system's improvement. One of the limitations is that the system must be regularly maintained and upgraded in order to improve and adapt to changes in the working environment in order to successfully implement processes and procedures.

The University of Baguio was founded by two educational leaders, Dr. Fernando "Tatay" Bautista and Mrs. Rosa "Nanay" Castillo Bautista whose lives have been dedicated to the education of the youth. In August 1948, they established a humble school named Baguio

Technical and Commercial Institute, otherwise known as "Baguio Tech". From five course offerings, it now offers 29 undergraduate programs, 12 graduate programs and 9 short-term programs, a Laboratory Elementary School, a High School and a Science High School which both have Grade 7 to 12. Furthermore, it employs 741 employees overall and has an estimated 18,000 students enrolled in elementary, secondary, tertiary and graduate programs for the school year 2022-2023. To cater the needs of the stakeholders, using inventory management system helps understand if there is a sufficient, shortage, or surplus inventory that can be utilized by the stakeholders.

2. Literature Review

Inventory management has evolved significantly since the beginning of the second industrial revolution, with Herman Hollerith's invention of the first automatic calculation device (Writing Intern, 2018). The barcode, created in the mid-1970s, has become the industry standard for inventory management. Norman Woodland created the barcode in the late 1940s, and the National Association of Food Chains used it to reduce check-out times. RFID technology, developed in the 1970s, uses radio waves to scan microchips and antennas, transferring information to computers. Today, RFID technology outperforms barcodes in terms of efficiency and accuracy.

Inventory management systems play a crucial role in understanding the purchase phenomenon, including product value, timing, frequency, stock cover, inventory turns, and minimum sales thresholds. Understanding the role of each product and consumer, determining the type of product, purchase frequency, and who decides on purchasing is essential (Ganesha et al., 2020). Maintaining proficiency over time and dealing with the uncertainty of inventory flow are crucial for maintaining the system's reliability and robustness (Almaktoom, 2017).

In supply chain management, inventory management is a difficult problem to solve. Companies require inventory in warehouse to meet client demand; yet, these inventories incur holding fees, resulting in a frozen fund that could be wasted. As a result, inventory management's goal is to locate the right amount of inventory to meet demand while avoiding overstocking (Plinere & Borisiv, 2015). The challenge of inventory replenishment planning is a major issue in supply chain management. It entails two key decisions: the lot sizing

decision, or determining the amount to order and the replenishment date determination, or replenishment schedule. When making these judgments, two crucial goals should be kept in mind: (1) lowering the total cost of ordering and holding the ordered items, and (2) decreasing the amount of storage space required. However, establishing a replenishment plan that minimizes both objectives at the same time is typically impossible (Boctor & Bolduc, 2015). The efficiency of product storage is determined by inventory management's operation. Moving load, delivery speed, service quality, operation costs, facility utilization, and energy savings all benefit from advances in technology and management principles. In the manipulation of logistics, inventory management plays a vital role. In order to link the manufacturing methods, a robust system requires a defined logistics frame, as well as adequate inventory implements and methodologies (Afolabi et al., 2017).

Inventory management efficiency is a critical component of a manufacturing company's ability to compete. Underproduction, overproduction, stock out situations, delays in raw material deliveries, and discrepancies in records were among the inventory management issues faced by manufacturing organizations. The elements of documentation/store records, planning, employee knowledge and staff skill, and money have all been found to have a substantial impact on inventory management in manufacturing small and medium firms (Chan et al., 2017).

Adoption of an appropriate combination of new inventory management approaches can improve corporate service delivery by guaranteeing a consistent flow of materials while simultaneously lowering carrying/handling expenses. As a result, the importance of ongoing staff training and retraining in order to improve store managers' professionalism and productivity, particularly in relation to technology-assisted inventory management systems, was emphasized (Aro-gordon & Gupte, 2016). According to QuickBooks (2018), IKEA is an illustration of a company that utilizes the most effective use of inventory management. IKEA, founded in 1943 by Ingvar Kamprad, has been the top furniture retailer globally since 2008. It is a Swedish international conglomerate with a presence in the Netherlands that creates and markets ready-to-assemble furniture, kitchen items, decorations, home accents, and a variety of other products and services. In contrast to IKEA, inventory management is a challenging business process in developing countries due to a lack of basic inventory control principles and methods. Additionally, because of procedural inefficiencies, bureaucracy, and

communication issues, emerging countries have trade deficits with developed nations. This causes supply uncertainty and lengthy lead times (Torrico & Oyola, 2021).

There have been few studies conducted in the Philippines involving inventory management in colleges and universities (i.e. Tungcul & Kummer, 2021; Arnesto et al., 2014; Castro, 2017). One study was conducted at Bestlink College of the Philippines, which needs to keep track of all equipment, but staff members have difficulty organizing and searching the logbook to quickly locate the equipment. Because it will make each transaction easy and trouble-free, the inventory system developed tends to replace the best transaction with good and high-quality products in the school's operations and future growth. The researchers used the systems development life cycle technique to finish the project (Bandiola et al., 2020). In addition, Tapado and Delluza (2016) conducted a study about the utilization of a prototype technique design to develop, implement, and deploy a system called equipment inventory management system (EIMS). The paper discussed the country's State Universities and Colleges' automated approach for managing the equipment inventories. In particular, the system gathers information about each employee's equipment records, tracks the history of the equipment given to each employee, performs automated inventory management, and generates reports about equipment inventory management.

2.1. Theoretical and Conceptual Framework

To optimize the production and storage of thousands of units of items and to help reduce costs, large organizations utilize a range of inventory control theories and mathematical formulas. Small business owners can manage production and storage based on demands for cost containment and customer service by drawing inspiration from a variety of inventory techniques.

The just-in-time (JIT) theory of inventory control encourages producing goods only when needed to fulfill orders rather than producing inventory in advance and holding it. As a result, carrying costs-which may include interest on credit used to fund the purchase of inventory-are reduced. If one of the supply chains, such as the capacity to procure goods or labor, is disrupted, this might be a risky venture. Consumable items are a good example of this because they are readily available when needed.

Another inventory control approach is levelized production, which tries to reduce labor costs by producing inventory steadily throughout the year rather than in peaks and valleys. If businesses wait to produce a product until there are sales orders, a rush may force companies to add a third shift, recruit overtime workers, or hire another producer to help satisfy orders. One may need to pay idle personnel when business is slow. Its production can be stretched out to maintain an even flow if it can predict demand precisely by month, quarter, or year. One can develop its own approach for controlling the inventory based on market conditions, the access to finance, and the production capabilities by combining elements of one or more of the current inventory control theories. If it is a retail business, it must stay in regular contact with the clients, lenders, and suppliers. Manufacturers must consider seasonal variations in labor and material availability as well as any price changes. If a company does not have enough storage space to maintain product on hand for all of its customers at once, it may need to pre-make inventory and send it to consumers for them to pay later. Production expenses may go up as a result, but the company will continue to operate. Once the organization has developed the ideal inventory control system, it should assess how it will affect expenses and adjust prices accordingly (Milano, 2023).

The periodic inventory system is a piece of software that enables stock counts on a regular basis. Companies enter stock numbers into the program, do a preliminary physical inspection of the products, and then input the data into the software to reconcile. Depending on their needs for their products and their bookkeeping, many businesses choose monthly, quarterly, or annual periods (Schwarz, 2022).

Considering the features that an organization needs is the fundamental step in selecting an inventory management system. Each inventory management system has these few essential components that make it useful for the industry. A system that offers the company real-time inventory monitoring can aid management in making important company decisions. Inventory management policies, which are guidelines for how to use the inventory system to enable users to maximize its potential, are just as crucial as the inventory management system. One component of inventory management is "asset monitoring", which enables companies to track equipment using the barcodes on its items. In addition to using this monitoring system, certain modern inventory management programs can also make use of Radio-Frequency Identification (RFID) and wireless tracking technology (Jenkins, 2020).

2.2. The University of Baguio Inventory Management System

Figure 1

University of Baguio Requisition Procurement & Inventory System (UBRPIS) Interface
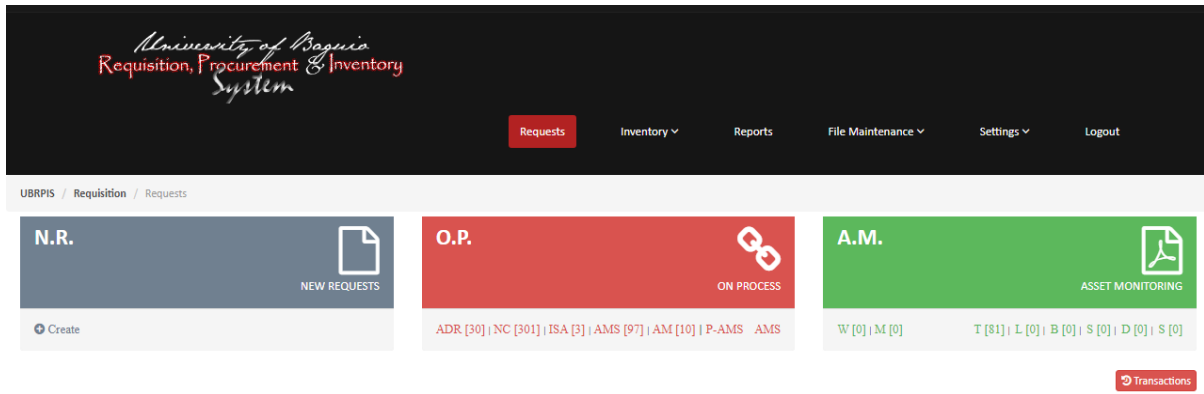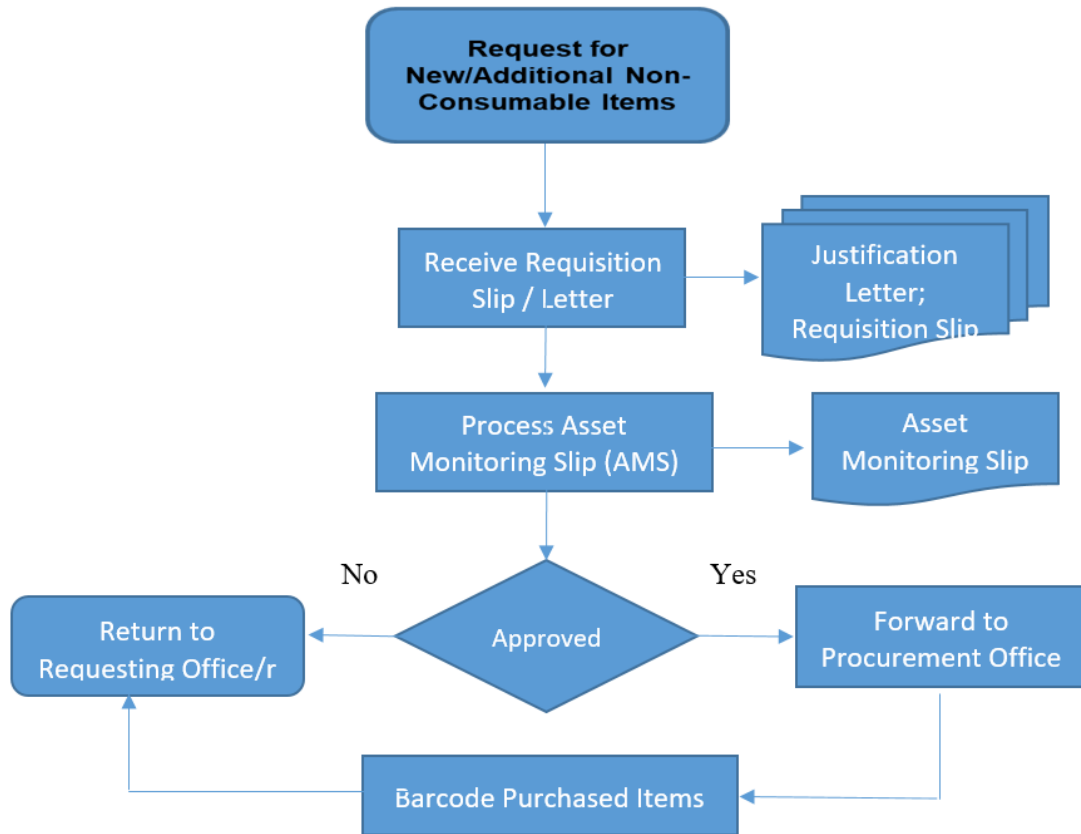

Figure 2

Request for New/Additional Non-Consumable Items

The University makes use of the following processes to acquire non-consumable assets for the institution. Figure 2 shows how to request for new or additional non-consumable items. Once the Property Section of the CPDO (Campus Planning and Development Office) submits requests, the procedure begins. The requisition slip and letter of justification are given to the inventory office. The inventory officer will next handle the request for attachment with an AMS (Asset Monitoring Slip) in the RPIS. The university accountant will then analyze the paperwork after it is sent to him. If approved, the request will be sent to the procurement office; otherwise, the requesting office or person will receive the documents back. If the item has been purchased, the inventory office will barcode it before giving it to the requesting officer.

Figure 3

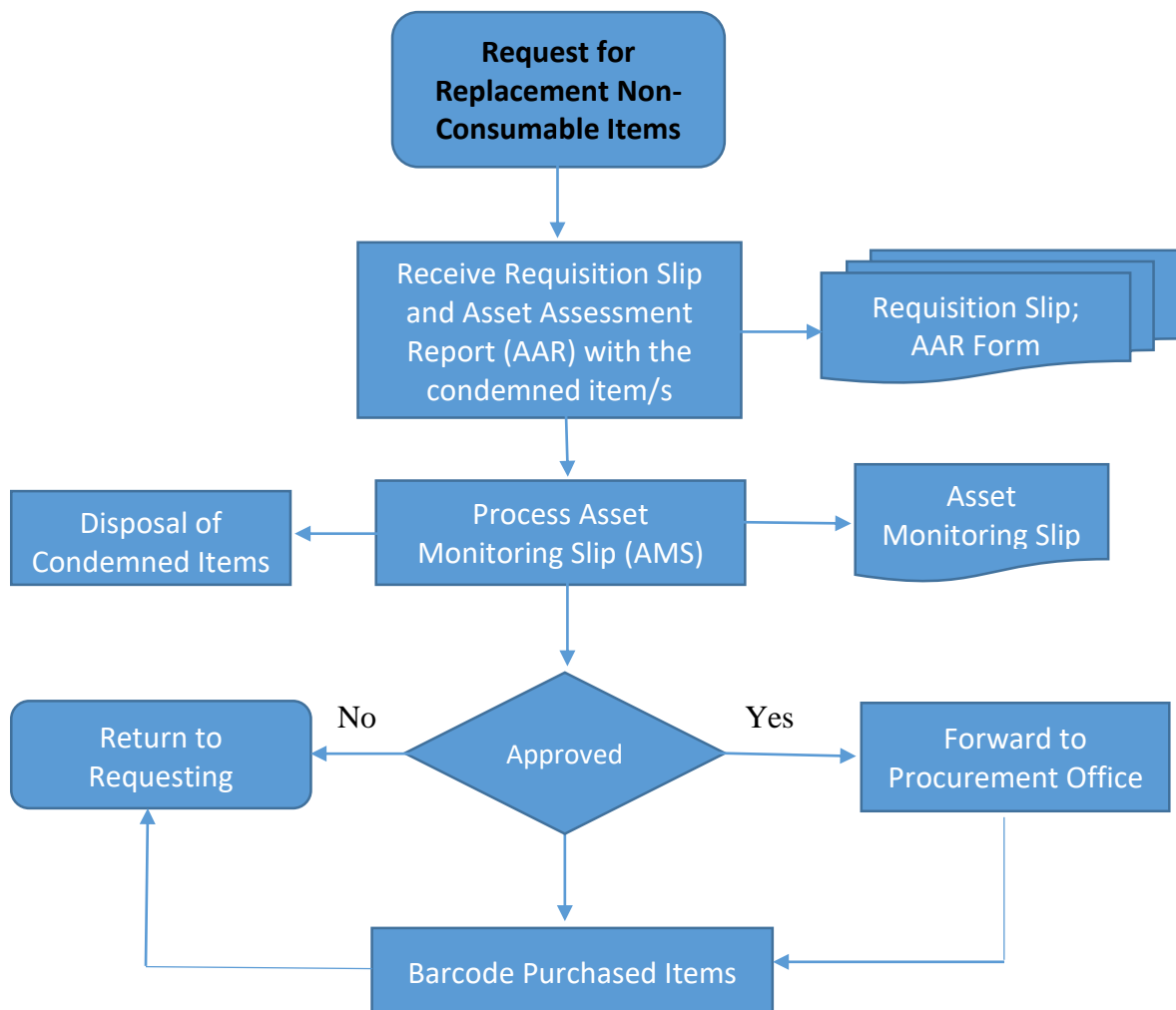*Request for Replacement Non-Consumable Items*

Figure 3 shows how to request replacement non-consumable items. The Inventory Office receives the requisition slip from CPDO, Property Section, together with the AAR (Asset Assessment Report) form and the item to be replaced. The requisition slip is processed by inventory officers using AMS from the RPIS. To ensure proper disposal, the condemned object will be put in the storage room. The documents will be sent to the university accountant, who will review them after receiving them. The requisition slip will be delivered to the procurement office if it is approved; if not, the documents will be returned to the office or person who made the request. Before sending it to the requesting officer, the inventory office will barcode the item if it has been purchased.

Figure 4

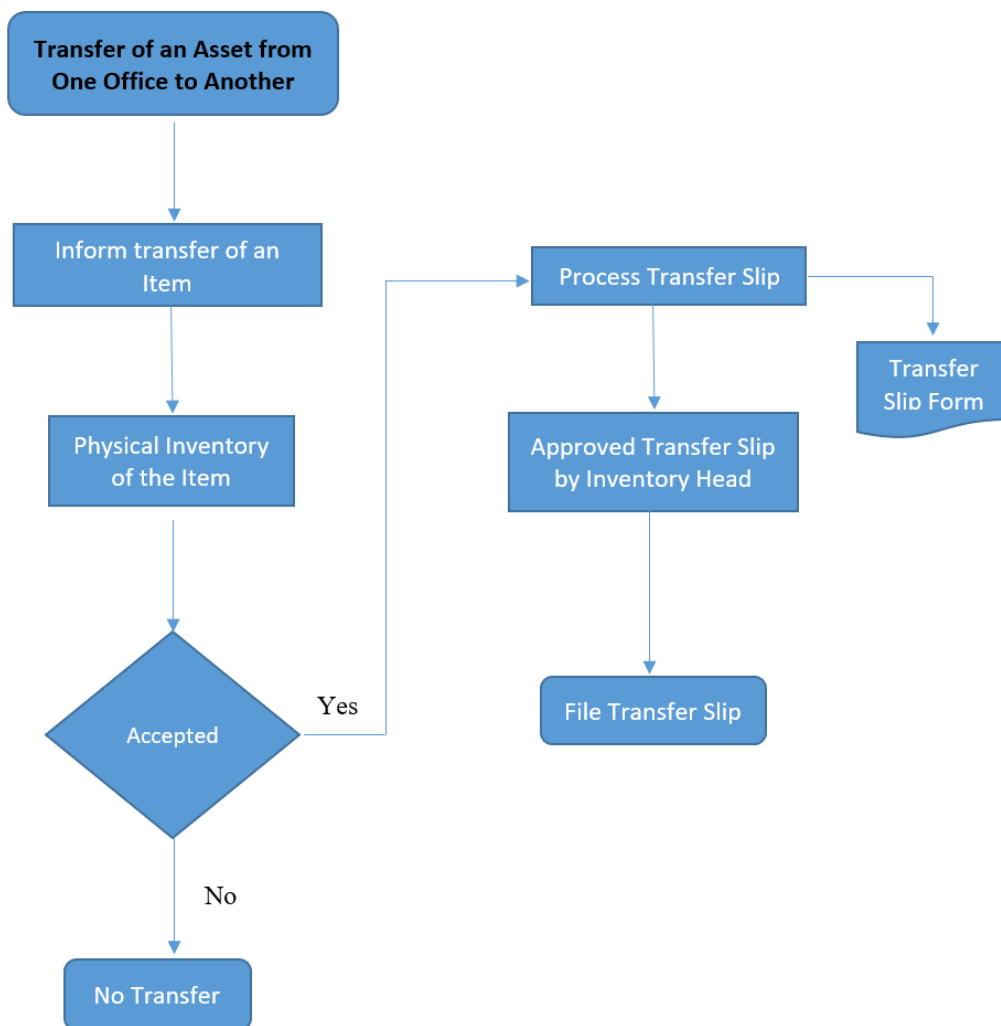*Transfer of an Asset from One Office to Another*

Figure 4 shows how to transfer an asset from one office to another. The inventory office will be notified by the department whenever an item is transferred from one department to another. The object to be transferred will be physically inventoried by the inventory office. The inventory officer will complete the transfer using a transfer slip from RPIS if the new accountable officer accepts the item; otherwise, no transfer will take place. The university accountant will sign the transfer slip and file it.

Figure 5

Transfer of Accountability of Non-Consumable Items from One Employee to Another
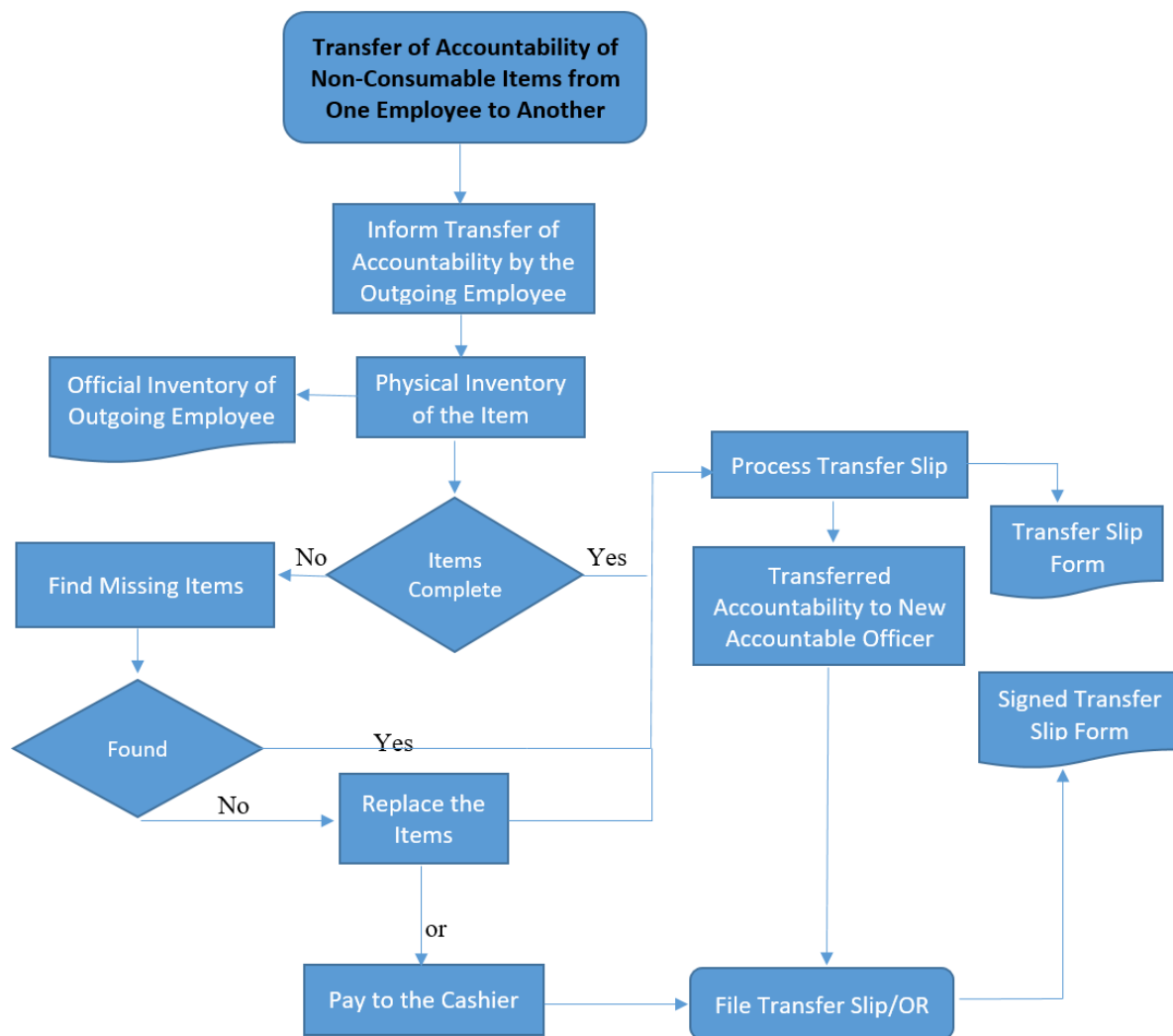

Figure 5 shows how to transfer accountability for non-consumable items from one employee to another. Accountability for non-consumable items transferred from one employee to another when that employee resigned, retired, or transferred to another

department. The inventory office will be notified of the employee's resignation, retirement, or transfer by the HR department or the person who resigns, retires or transfers. Then, along with the new accountable officer and using the official inventory of the outgoing employee, the inventory office will conduct a physical inventory of the accounted items for that employee. Using a transfer slip generated by RPIS, the inventory officer will transfer the items to the new accountable officer if they are complete. The transfer slip will then be filed by the inventory officer. The inventory officer will give the outgoing officer enough time to locate any missing items if the items are not complete. If the missing items are discovered, the inventory officer will process the transfer slip. If an item is lost, the inventory officer will give the outgoing employee the option of replacing it or paying the depreciated value to the cashier. If the outgoing employee replaces the lost item, the inventory officer processes the transfer of the item to the new accountable officer. If the outgoing employee pays to the cashier, the inventory officer files the OR (official receipt), removing the item from the official inventory.

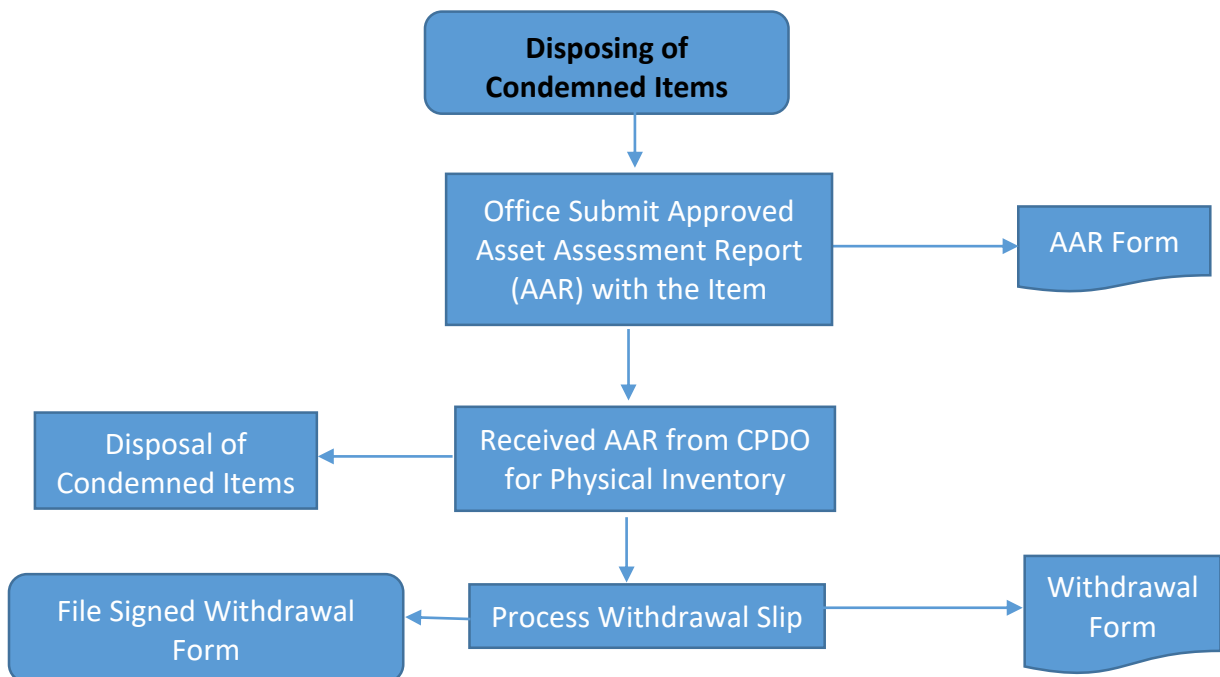**Figure 6**

Withdrawal of Condemned Items

Figure 6 shows how to dispose condemned items. Items that have been disposed as condemned are non-consumables that are broken, beyond repair, or so out of date that the

department has decided to surrender them without a replacement. The item is handed over by the department to the CPDO's Property Section together with the approved AAR form. The AAR form and the condemned item were received by the inventory office, which then sent the condemned item to the store room for proper disposal. Condemned items are disposed of when the storage area is full, which typically occurs once a month. The withdrawal form is processed by the inventory office, which also gets the accountable officer and the university accountant to sign it before filing it.
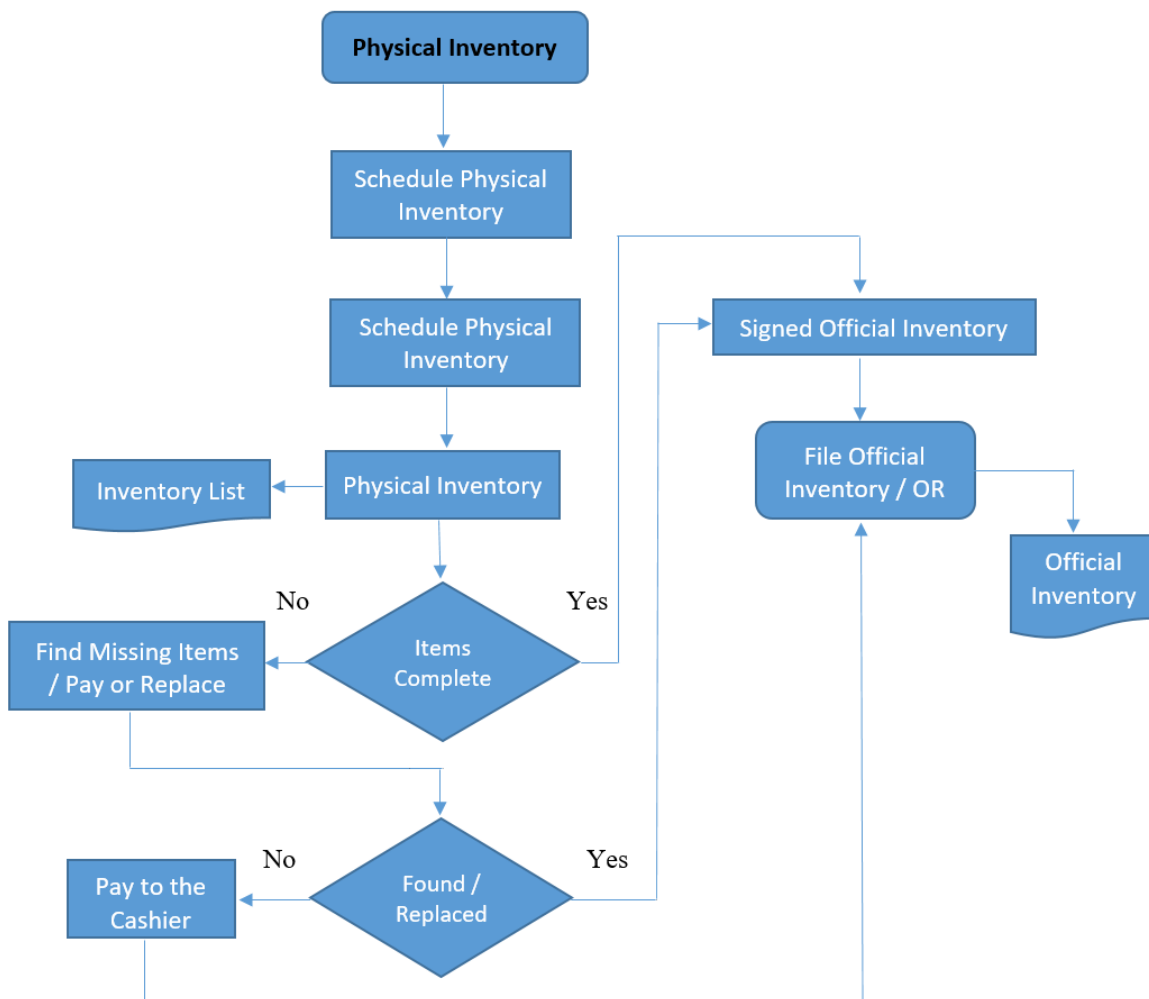
Figure 7

Physical Inventory

Figure 7 shows the physical inventory, which is done annually. The actual checking of non-consumable items by an accountable officer is recognized as physical inventory. The

physical inventory is scheduled by the inventory office. An accountable officer's inventory list is used to conduct a physical inventory. If all of the items have been checked, the inventory office will generate an official inventory, for the accountable officer and university accountant to sign. If not, the inventory office will allow the accountable officer enough time to search for the missing items. If the item is located or replaced, it will be added to the accountable officer's official inventory; otherwise, the item will be removed from the official inventory and the accountable officer will pay the cashier at depreciated value for it.

3. Methodology

3.1. Study Design

The study used a quantitative research design, specifically a descriptive - survey method. Using a questionnaire designed, the study determined the respondent's profile, their familiarity of the university's inventory management system, and identifies the limitations and suggests recommendations to address the limitations.

3.2. Population and Sample of the Study

The study's population consisted of university employees who used the UBRPIS. The system was first used at the university in 2016. A total of 101 people completed the surveys, which were distributed both electronically and on paper to all 105 system users.

3.3. Data Gathering Procedures

The researcher submitted a letter to the vice president of finance, which was signed by the department head, requesting permission to conduct a study within his department and permission to distribute questionnaires to the concerned personnel. Prior to data collection, the questionnaires were validated by the adviser and experts. Following approval from the adviser and experts, the questionnaires were distributed to respondents and collected using Google Forms and printed copies. The data collection took two weeks.

3.4. Treatment of Data

In the first and second parts of the questionnaire, frequency and percentages were computed. These data were used to achieve the study's first two objectives. On the other hand, the third part was analyzed through content analysis.
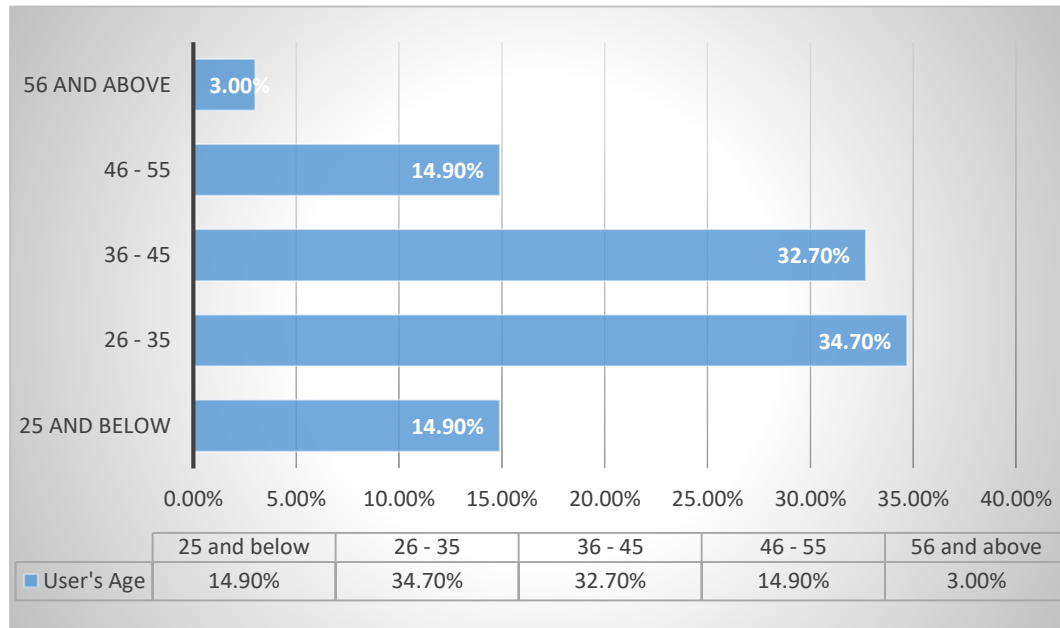
4. Findings and Discussion

4.1. UBRPIS user's profile

Figure 8 presents the age distribution of UBRPIS users. The majority of UBRPIS users are between the ages of 26 and 35, with a minority between the ages of 56 and up.

Figure 8

User's Age

|	25 and below	26 - 35	36 - 45	46 - 55	56 and above
■ User's Age	14.90%	34.70%	32.70%	14.90%	3.00%

According to Rosell (2021), the use of technology in daily life is becoming more important. Information and communication services are rapidly becoming digitalized. People are constantly forced to adapt to "what is new" as a result of technological advancement. Those born before the "internet age" and outside of the digitally advanced world will undoubtedly face difficulties. Age does have an impact on how people use technology. However, the notion that older people's ability to pick up on technology is the main barrier should be rejected. People must accept responsibility for the fact that a large part of the problem is still based on assumptions about how difficult it is to learn new skills as people age.

Figure 9 displays the UBRPIS user classifications. Non-teaching personnel make up 89.10% of the users.
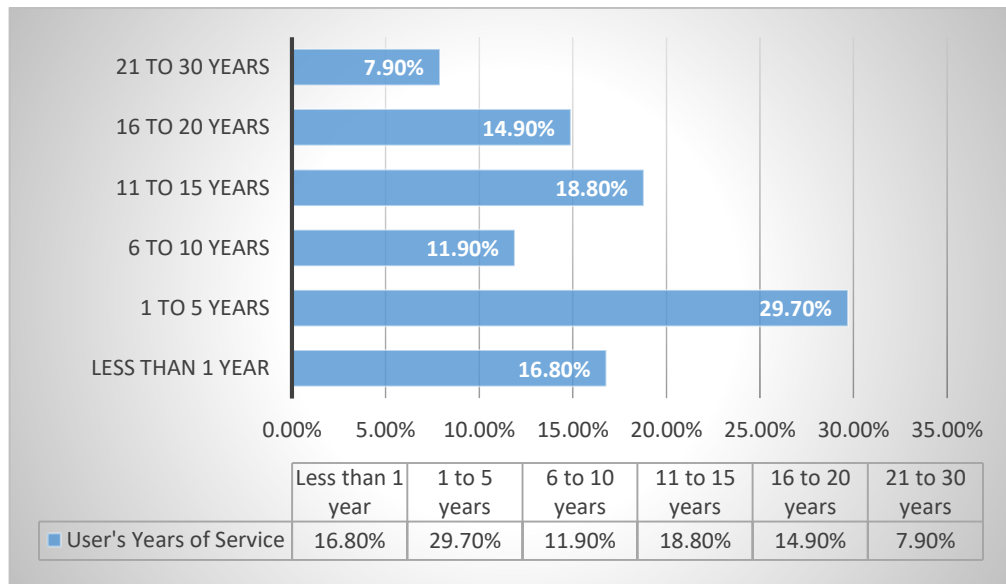
Figure 9

User's Classification

	Teaching	Non - Teaching	Management
■ User's Classification	4%	89.10%	6.90%
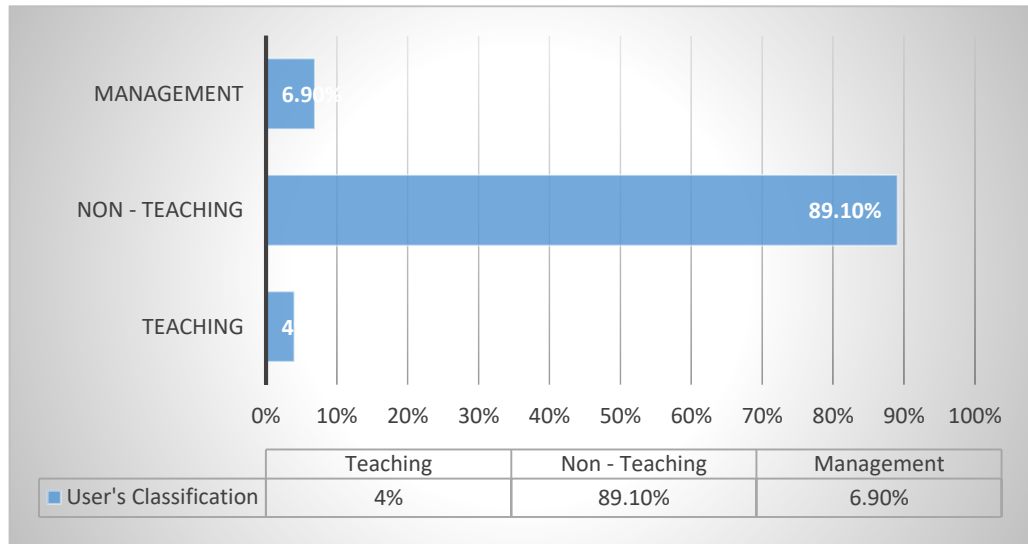
From the article Institutional Knowledge by Valamis (2022), what a corporation and its employees collectively know is known as institutional knowledge. This can include the know-how, procedures, principles, and experiences that span the whole history of the organization or are brought to the organization by new personnel. An essential component of managing a successful firm is maintaining knowledge and expertise. While innovation and fresh company strategies can result in significant growth, this is most effective when staff members are aware of the past and have a shared understanding of the workplace.

Figure 10

User's Years of Service in the University

	Less than 1 year	1 to 5 years	6 to 10 years	11 to 15 years	16 to 20 years	21 to 30 years
■ User's Years of Service	16.80%	29.70%	11.90%	18.80%	14.90%	7.90%

The length of users' employment with the institution is presented in figure 10. Most of the users have worked in the institution for between one and five years. According to McCathy (2018), business all across the world use technology, a platform that is ever-evolving and getting better. Every day, technological development shapes the way people will work in the future. The younger generation are the huge importance for the future of business and technology, as they themselves will be part of the working generation. At GSM Barcoding, technology is a significant aspect of the business, and it is these improvements that have helped the company with the stock control software and solutions to assist businesses enhance the barcode tracking.

4.2. Determining the employees' familiarity of the inventory management system

Table 1, 2 and 3 illustrate the users' familiarity of the procedures involved in the university's inventory management system. The questions that were asked are listed in the first column, along with their frequency and percentages.

Table 1

Employees Familiarity of the Inventory Management System According to Age

Question	Age					
	25 and below (n=15)	26 to 35 (n=35)	36 to 45 (n=33)	46 to 55 (n=15)	56 and above (n=3)	Over-all (n=101)
1. Do you know how to request for new or additional non-consumable items?	13 (86.67%)	33 (94.29%)	33 (100%)	14 (93.33%)	3 (100%)	96 (95.05%)
2. Do you know how to request for new or additional non-consumable items?	13 (86.67%)	30 (85.71%)	33 (100%)	14 (93.33%)	2 (66.67%)	92 (91.09%)
3. Are you aware of the use of barcodes of the non-consumable items?	13 (86.67%)	31 (88.57%)	27 (81.82%)	11 (73.33%)	2 (66.67%)	84 (83.17%)
4. Do you know the process in transferring the accountability of non-consumable items to another accountable officer?	8 (53.33%)	18 (51.43%)	24 (72.73%)	10 (66.67%)	2 (66.67%)	62 (61.39%)
5. Do you know the process in withdrawing of condemned non-consumable items?	7 (46.67%)	18 (51.43%)	25 (75.76%)	12 (80%)	2 (66.67%)	64 (63.37%)
6. Do you know the process in the physical inventory of accounted non-consumable items?	6 (40%)	21 (60%)	25 (75.76%)	13 (86.67%)	2 (66.67%)	67 (66.34%)

Table 1 shows the employees' knowledge of the inventory management system in terms of age. Ages 25 and under have a low proportion of people who are aware of the processes involved in inventory management, whereas ages 36 and older have the highest percentage, according to table 1's overall trend. Ferguson (2023) states that long-term employees have a great deal of information about the company's culture, as well as its products and services. They are aware of what works and what doesn't because they have seen numerous changes in their line of work. They build a solid knowledge base through daily job performance, which leads to increased productivity because fewer errors are made. For instance, a manufacturing company's long-term employees have a thorough understanding of manufacturing processes, which ultimately results in better sales.

Table 2

Employees Familiarity of the Inventory Management System According to Employee Classification (n=101)

Questions	Employee Classification			Over-all (n=101)
	Teaching (n=4)	Non-Teaching (n=90)	Management (n=7)	
1. Do you know how to request for new or additional non-consumable items?	4 (100%)	85 (94.44%)	7 (100%)	96 (95.05%)
2. Do you know how to request for replacement non-consumable items?	4 (100%)	81 (90%)	7 (100%)	92 (91.09%)
3. Are you aware of the use of barcodes on the non-consumable items?	3 (75%)	74 (82.22%)	7 (100%)	84 (83.17%)
4. Do you know the process in transferring the accountability of non-consumable items to another accountable officer?	1 (25%)	55 (61.11%)	6 (85.71%)	62 (61.39%)
5. Do you know the process in withdrawing of condemned non-consumable items?	2 (50%)	56 (62.22%)	6 (85.71%)	64 (63.37%)
6. Do you know the process in the physical inventory of accounted non-consumable items?	2 (50%)	59 (65.56%)	6 (85.71%)	67 (66.34%)

Table 2 displays the employees' knowledge of the inventory management system based on employee classification. As a whole, management is the group that is most aware of the procedures involved in the system of inventory management. Perhaps this is due to the fact that upper-level managers, who must make numerous decisions on the operation of the organization, are informed of every detail.

Table 3

Employees Familiarity of the Inventory Management System According to Years of Service (n=101)

Questions	Years of Service						
	< 1 year **(n=17)**	**1 to 5** **(n=30)**	**6 to 10** **(n=12)**	**11 to 15** **(n=19)**	**16 to 20** **(n=15)**	**21 to 30** **(n=8)**	**Over-all** **(n=101)**
1. Do you know how to request for new or additional non-consumable items?	12 (70.59%)	30 (100%)	12 (100%)	19 (100%)	15 (100%)	8 (100%)	96 (95.05%)
2. Do you know how to request for replacement non-consumable items?	12 (70.59%)	28 (93.33%)	12 (100%)	18 (94.74%)	15 (100%)	7 (87.5%)	92 (91.09%)
3. Are you aware of the use of barcodes of the non-consumable items?	11 (64.71%)	26 (86.67%)	12 (100%)	18 (94.74%)	13 (86.67%)	4 (50%)	84 (83.17%)
4. Do you know the process in transferring the accountability of non-consumable items to another accountable officer?	7 (41.18%)	16 (53.33%)	10 (83.33%)	13 (68.42%)	13 (86.67%)	3 (37.5%)	62 (61.39%)
5. Do you know the process in withdrawing of condemned non-consumable items?	7 (41.18%)	13 (43.33%)	12 (100%)	15 (78.95%)	13 (86.67%)	4 (50%)	64 (63.37%)
6. Do you know the process in the physical inventory of accounted non-consumable items?	9 (52.94%)	18 (60%)	9 (75%)	16 (84.21%)	11 (73.33%)	4 (50%)	67 (66.34%)

Table 3 presents the employees' familiarity with the inventory management system based on their length of employment. According to the table, users with an average tenure of six to ten years in the organization are more likely to be familiar with the inventory management system's operations, whereas users with shorter tenures of less than a year and those with 21 to 30 years of service are less likely to be. Perhaps this is due to the fact that employees who have been with the company for six to ten years are accustomed to the procedures, while those who have been there for less than a year are still new to the company, and those with 21 to 30 years of service forget the procedures due to advancing years.

4.3. Recognizing the Limitations of the Inventory Management System and Making Recommendations

The figures below show the frequency of limitations encountered by the users on the given processes and is able to provide other constraints that are experienced when using the inventory management system. Figures 11 to 16 show the limitations of the inventory management systems.

In figure 11, process 1, the process itself has the highest frequency. This indicates that users have trouble requesting new or additional non-consumable items. The item name is not included in the system, and the attachment of a justification letter with proper signatories from heads is the most likely cause of this. When making a new or additional request, a letter of justification is required. The head/director/dean of the office, as well as the supervisory vice president, have signed this letter as evidence that this new or additional item is required in their department or office.

Figure 11

*Process 1: Request for New or Additional Non-Consumable Items*
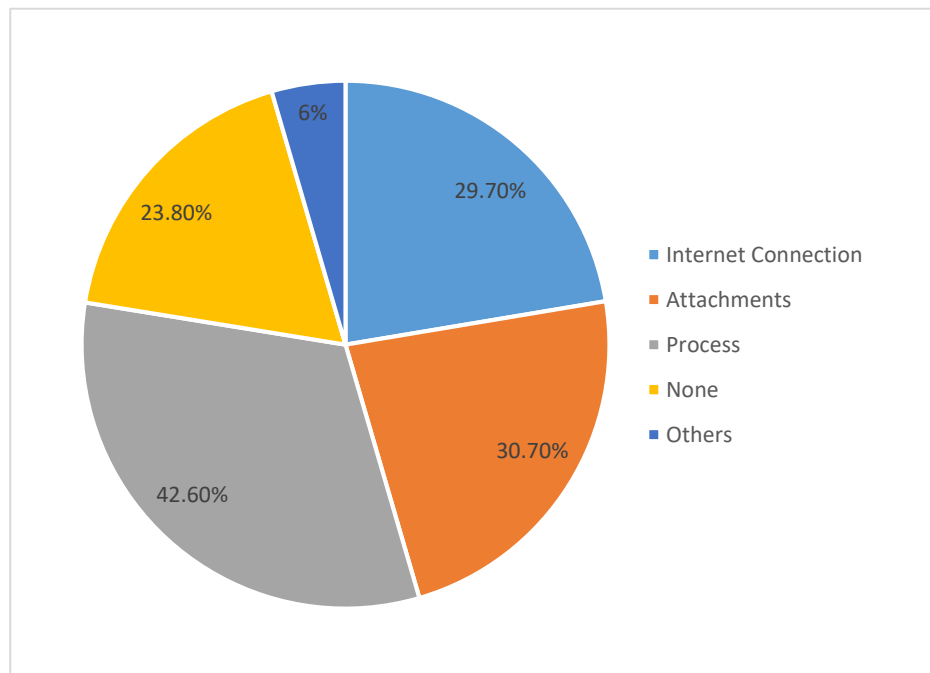
The process itself has the peak value in figure 12, process number 2, at 46.50%. This indicates that users are finding it difficult to request replacement assets. The fact that the replacement request must still be made manually on the requisition slip form is likely the primary factor. Jenkins (2020), states that organizations can better satisfy customers' needs

and cut costs by using an inventory management to keep track of all incoming and existing assets. Every key company functions, including budgeting, operations, inventory control, procurement, and customer service – is impacted by the system. The main requirements for an inventory management system include a means of storing, managing, organizing, and analyzing inventory data. Among the system requirements are: (1) a user-friendly interface that doesn't need special training, documentation, or support; (2) automation for functions relating to inventory management to get rid of manual processes; (3) a reliable, secure database that produces accurate, real-time data; (4) performance that makes fast, effective inventory control and monitoring viable; (5) sustainability of the system is ensured by administrators' ability to install software modules quickly and with little configuration; and (6) minimizing manual inventory updates or inputs through technological integrations and automated features.

Figure 12

*Process 2: Request for Replacement Non-Consumable Items*
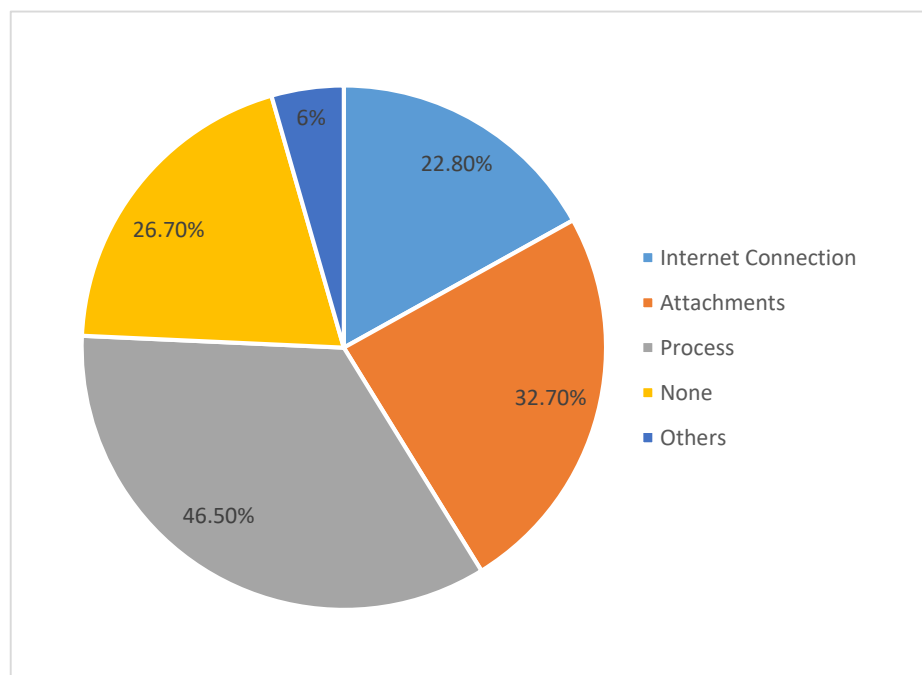
The client's primary concern in figure 13, process 3 is where the barcodes are located, which accounts for 38.60% of the total. Most likely, the main reason for this is that barcodes can sometimes be hidden, which make them difficult to locate. Camcode (2021) asserts that effective inventory programs depend on the placement and positioning of fixed asset identification tags and barcode stickers. Consistency in the positioning of such tags is a key factor. Accessibility for regular follow-up inspections is a good indicator. While it is always

possible to damage an asset when applying tags, they shouldn't be placed remotely so that it is difficult to connect them or locate asset tags during scanning verification.

As for the other limitations, certain items lack barcodes because there isn't a programmer available to update and improve software functionality, and there isn't enough manpower to complete the operation at hand.

Figure 13

Process 3: Barcoding for Non-Consumable Items
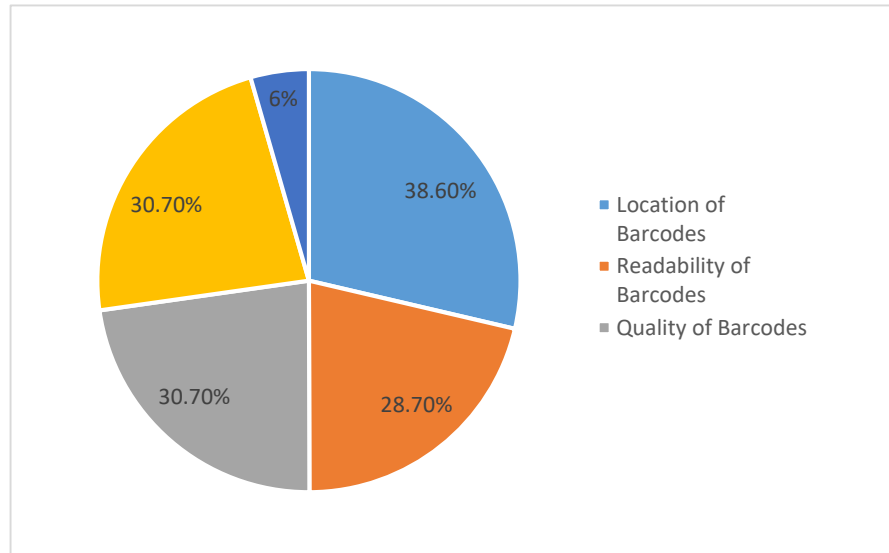
Regarding figure 14, process 4 which involves transferring the accountability of an asset to another person, the results, 51.50% for the process and 46.50% for the acceptance of the accountability of the new accountable person, are not too far apart. This suggests that users are having issues with the process, possibly because no one has been hired or transferred to the office to accept responsibility for the non-consumable items, therefore, the old employee who is still there is obliged to do so. Georgia.gov (2023) discusses the manner by which the state maintains accountability for the physical computing devices and software purchased with the public funds is through asset inventory, which is mandated under state asset management rules. Each state agency must keep perpetual and current records of all the hardware and software (including licenses) it has purchased using public funds. The hosting agency is in charge of this responsibility when resources are shared by between two or more Georgia state government agencies. The Official Code of Georgia Annotated section 50-16-60 et seq. and any applicable state or agency asset management policies must be followed when recording any asset.

Figure 14

Process 4: Transferring the Accountability of Non-Consumable Items to Another Accountable Officer
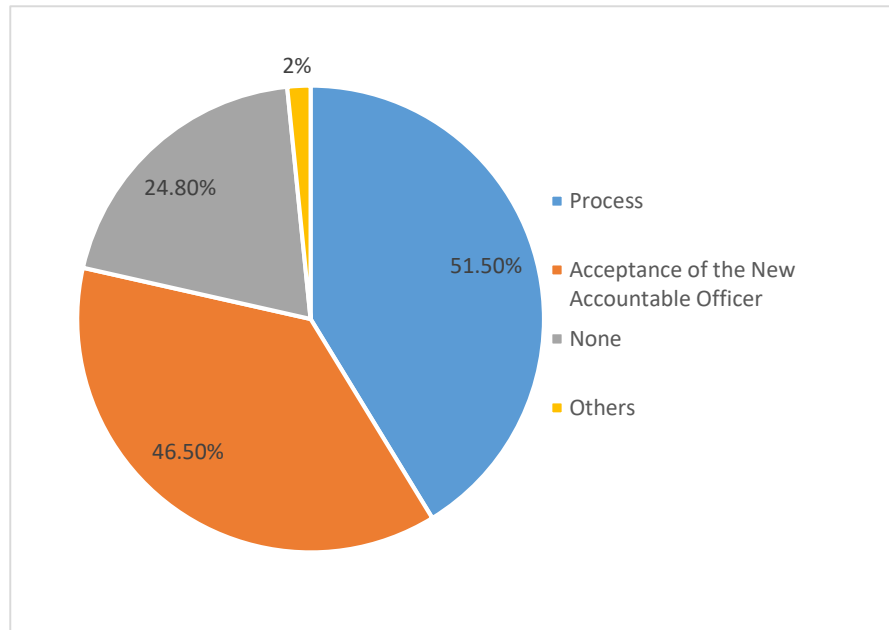

Figure 15, process 5 contains the process's highest value, which is 55.40%. This indicates that users are confused about the procedure for withdrawal of condemned non-consumable assets; the fact that only condemned items are allowed to be withdrawn from users' responsibility could be the cause of the issue. Sandham (2021) explains that the life cycle of equipment is rather simple, but deciding when to condemn and how to dispose of equipment appears to be the challenge. The expert in charge of the department should have the expertise, knowledge, and ability to determine when a piece of equipment should be scrapped and taken out of service when considering condemnation and disposal. Equipment condemnation is typically done for the following reasons: (1) beyond economical repair, this is the point at which the expense of repairing the equipment is deemed to be too high after considering its age, depreciation, and current worth; (2) technically out of date; no longer supported by parts and services; (3) clinically outdated; the maker (or the clinician using the equipment) recommends replacement for clinical grounds, due to advancements in imaging technology, diagnostic ultrasound imaging, typically becomes clinically obsolete after 5 years, but it can still be utilized and supported by the supplier; and (4) equipment that has been contaminated and damaged.

Figure 15

Process 5: Withdrawal of Condemned Non-Consumable Items
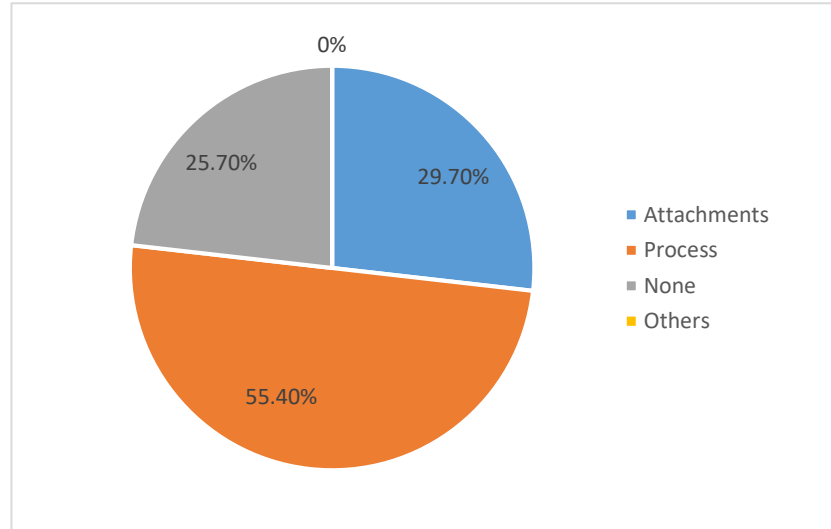
The results for figure 16, process 6, which entails a physical inventory of accounted non-consumable assets, are not too different: 44.60% for the process and 46.50% for the unavailability of non-consumable items. This suggests that clients could have issues with the process because physical inventory is not done on time, leading to the unavailability of non-consumable items. Paychex Worx (2022) mentions that only an actual count can disclose what is on hand and ensure it matches what is in the system, regardless of whether the use of inventory management software or other systems to track inventory throughout the year. For instance, it's crucial to identify "shrinkage," which is a decrease in inventory as a result of things being stolen, damaged, or counted incorrectly, so it's possible to remedy it.

Figure 16

Process 6: Physical Inventory of Accounted Non-Consumable Items
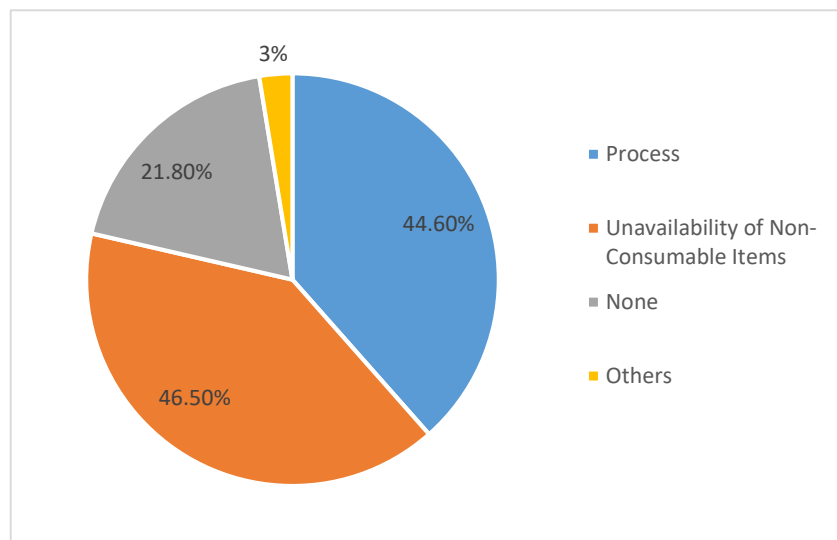
As a whole, the limitations encountered in the processes involved are the following: internet connection; the necessary documents or attachments; the process itself, which some employees are confused with; and the RPIS, some of whose modules are not yet functional.

The suggestions from the users for enhancing each procedure are shown in Table 4. These were taken directly from the respondent's responses.

Table 4

Recommendations for the Inventory Management System

FOR UBRPIS	FOR THE PROCESSES	OTHERS
1. More Options 2. Pictures and other documents can be downloaded from RPIS 3. System must be open every week and not just twice a month 4. Affix e-signature 5. Barcodes should be linked to an inventory system for easy monitoring and accountability 6. Barcodes should be visible immediately 7. Barcodes should be place on the item after being issued to avoid delays 8. Able to provide list of accounted non-consumable items to person concern every semester	1. Ensure awareness of PPG thru different platforms especially for new employees. 2. Process/instructions should be easier to follow 3. Make the process fully online since there are still parts of the process where hardcopies are being routed 4. Set limit of needed letter, not all non-consumable should have letter. 5. Once there is a new accountable officer, endorsed the items old accountable officer to the new accountable officer.	1. Limited manpower for the part of the office to process all transfer. Add more staff/student assistants

Table 4 shows the suggestions made by the users, which are collated and grouped into three categories: UBRPIS, process, and others. As can be seen in the first column, users ask

for more options that would allow them to access some modules that are not yet functional at their end and request items that are not yet included in the system. Signatories can attach their signatures to the UBRPIS, and images as well as other documents can also be submitted into the system. For quick tracking and checking of the goods, another possibility is to include a barcode that is immediately visible and can be scanned. Finally, they were allowed to access the inventory list that was issued to them.

Users wanted to be aware of and knowledgeable about the policies, procedures, and guidelines regulating the processes used in the inventory office, which is why they turned out the second column. Another is to completely automate the process online, impose limitations on products that require a justification letter, and immediately transfer inventory to the new accountable officer.

There are two inventory officers and one student assistant in the office. The final recommendation is to add more staff to the office to handle any inventory-related issues. These ideas are viable as long as the programmer is readily available and willing to make adjustments.

4. Conclusion

The following conclusions are drawn from the results of the study. All users within the company are not fully aware of the processes involved in the inventory office, indicating that they constantly inquire about the process from the office and does so repeatedly. Because users are not aware of the processes involved, the process itself is the biggest limitation identified in the inventory management system. The following recommendations are made based on the findings:

1. Because of the high employee turnover rate and the fact that certain offices only have one person assigned to handle item requests, there must be a continuous online webinar for all university employees about the inventory management system in the institution. The purpose of the online webinar is to familiarize employees with the policies and procedures for using UBPRIS.
2. Invest in inventory management system technology that best meets the requirements of all system users. The use of technology that integrates well the inventory

management software could help manage all non-consumable items with things like mobile scanners or barcode readers.

3. For the hardware, the printer and barcode reader have to be compatible with the RPIS system. Software that is constantly upgraded, and users of RPIS should have periodic webinars or seminars.

4. As a result of the inventory management system's connections to other sections like the property and procurement offices, their input and recommendations are greatly valued in advancing the system.

5. Additional manpower and a wider working area for the inventory officers to accomplish needed reports and tasks are proposed or requested.

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