

# Analysis of Internal Control System on Inventory at University of X

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**Abstract.** The purpose of this study is to analyze internal control system related to inventory management at University of X and aims to provide a recommendation to manage problems that occurred. Audit report from State Development Audit Agency stated that the university has not conducted proper and adequate control activities. The method in this research is descriptive analysis in the form of case study. Data have been obtained through document analysis, observation, and in-depth interviews with informants. The results show that there are weaknesses of university in conducting control activities on inventory management. The weakness that has been found such as, at physical control of asset, where there is an activity that does not have a SOP and an unsophisticated flowchart for standard SOP on accepting, saving and distributing goods. The recommendation obtained from this study to organization related to control activities such as new SOP and other recommendation that can be applied to solve existing problems. The limitations of this study are the absence of audit reports from the university's internal audit team and the audit results of the accounting information system.

## 1. Introduction

University of X is a university located in Riau. In carrying out its internal control system, Riau University experienced problems that could hinder the effectiveness and efficiency of its inventory management. This problem is also reinforced by the findings of BPKP, that there is yet to be proper control activities equipped for inventory management and monitoring have not done periodically. This problem led to error in managing and reporting inventories

Looking at report of inventory position on balance sheet from 2016 to 2017 is known that inventory value at University of X has increased by 25%. So a good operational procedures and supervision of the implementation of such procedures are necessary in the institution's operational activities. Therefore, the researcher wants to do an analysis to institution operational procedure related to inventory management. This research will also provide recommendation of control activities on inventories management where this proposal is expected to help the institution to fix the existing problem.

This study is important to conduct because this study analyzes the components of control activities in depth to solve the problems. The purpose of this study is to analyze how control activities procedures done by University of X regarding inventory management and to give recommendation regarding control activities that can be applied in University of X to improve the effectiveness and efficiency of inventory management. This research is expected to provide benefits for the related institutions, where this research is expected to be input and consideration in designing improvements to the internal control function of University especially for control activities on inventory management. And for the academics, the results of this study are expected to be used in subsequent studies to add insight as well

as become a literary material and an additional source of information in conducting further research with a similar theme.

The scope of this study is a discussion that will only be limited to the internal control conditions focusing on control activities in University of X associated with the inventory management. The research method used in this research is case study with qualitative method analysis with one unit of analysis. This method is used because with this method the problem will be well analyzed. The unit of analysis on this research is University of X because the phenomenon that has been described in the background occurs in this unit analysis. The type of data that researcher uses in this study according to the source is primary data and secondary data. Primary data in this research is interview result with respondent of company employee that directly related to company activity. The other primary data is the result of direct observation done by the researcher on the unit of analysis. While the secondary data obtained from document analysis, including corporate organizational structure and related legislations.

This research consists of 4 chapter, such: introduction ,literature review, research methodology, discussion, and conclusion.

## **2. Literature Revie**

### *2.1. Internal Control*

According to Government Regulation No. 60 (2008), internal control is an integrated process that conducted by by the board of commissioners of management, and other personnel entities on every action and activities continuously to provide reasonable assurance about achievement of organization's objectives through the effectiveness and efficiency of operations, reliability of financial reporting, safeguarding state assets and compliance with applicable laws and regulations.

Mulyadi (2013) states that internal control definition is covering the organizational structure, method and standards that are coordinated in order safeguarding organization's wealth, ensuring the accuracy and reliability of accounting data, boosting efficiency and compliance with management policies. While Kumaat (2011) define internal control as a way to directing, monitoring and measuring organization's resources and also had a role in preventing and detection of fraud.

COSO (2013) elaborates possible limitations of an effective internal control system on the consequences of :

- Suitability of objectives established as a precondition to internal control,
- Reality that human judgment in decision making can be faulty and subject to bias,
- Breakdowns that can occur because of human failures such as simple errors,
- Ability of management to override internal control,
- Ability of management, other personnel, and/ or third parties to circumvent controls through collusion,
- External events beyond the organization's control.

According to COSO (2013) and Government Regulation No. 60 (2008), internal control consists of five interrelated components, which are:

- Control Environment
- Risk Assessment
- Control Activities
- Information and Communication
- Monitoring Activities

But only one component that will be explained in detail for this research which is control activities, because lots of problems related to inventory management that had been found are concerning this component and also State Development Audit Agency recommends organizations to improve university's control activities. Government Regulation No. 60 year 2008 stated that control activities is an action taken to overcome risks and the establishment and implementation of policies and procedures

to ensure that activity to address risks have been effectively implemented. This action prioritizing on main activities of the organization regarding risk assessment process. Control activities consisted of :

- Segregation of duties
- Authorization of transaction and activities
- System information controls
- Physical controls
- Institution performance review
- Human resources development
- Performance indicator establishment and review
- Accurate and timely recording
- Access restrictions
- Accountability for resources and recording
- Adequate documentation

### *2.2. Accounting Information System*

Bodnar (2010) states that accounting information system is computer based system created to transform accounting data into information. Documentation is required in an attempt to explaining how the system works. According to Romney and Steinbart (2015), the instrument that can be used in documentation system is Data Flow Diagram, Flowchart and Business Process Diagram.

## **3. Research Methodology**

This research is done through case study approach. The reason of this research using a case study approach because this research investigates a phenomenon in depth within unit analysis (Yin, 2009). This study also explores extensively the causes of problem that can arise in the organization. The purpose of this study is to portray precisely the phenomenon therefore, case study typologies in this study is descriptive case study. The unit analysis in this research is University of X therefore, the unit of analysis is a holistic or single unit of analysis. My research focused on problems in implementing control activities on inventory management at University of X. The research strategy has been employed to identify important problems in research area, and then find accurate solution of them (Mohojan, 2017).

The data collection procedure conducted in this research is by doing a preliminary survey at University of X to obtain information and description of the problems faced by the organization and then conducting an in-depth interviews are conducted several times to obtain data and information that help researcher to analyze the causes of the occurrence of existing problem and finding a proper recommendation for control activities to minimize or even eliminate the problem experienced by the institution. The interview was conducted head of finance subdivision, head of administration, internal affairs division, head of administration, internal affairs subdivision and general affairs staff who in charges managing inventory and another staff who charge managing state-owned property (BMN).

The data used in this research is in the form of primary data and secondary data. Primary data is a data obtained directly from the unit of analysis (Yin, 2003). The research instruments used are focus group discussion with several employee that directly responsible in university's operational activities related to inventory such as head of finance subdivision, head of administration, internal affairs subdivision and general affairs staffs as well as observations of university activities related to inventory. For collection of secondary data, researchers used both published and unpublished data. Published data are organizational structure and organizational vision and mission and also a set of legislation and other regulations related to the inventory management in university. While unpublished data are internal documentation obtained from University of X as in financial report of University of X, inventory position on balance sheet report and auditing report from BPKP.

Data analysis method used in this research is analysis of qualitative data with Miles and Huberman model with these stages. First, data reduction, a stage where relevant data and information collection was done so it can be used in analysis. Second, data display, a stage where data and information that

has been collected and analyzed is being displayed to show relation between phenomenon and what is really happening. Lastly, conclusion drawing/verification, a stage where researcher explain the answer for research problem which can be obtained from the results of research that has been done.

#### 4. Discussion

The outline of inventory management process at University of X starts from the needs planning process. In this process, University make proposed procurement request for a year's need, where the proposed value of the goods has been adjusted to last year's used and also with university's budget. After the proposal is approved by the Rector and also authorized by the Commitment Making Officer (PPK) then procurement will be held through the auction process. Once agreement is reached with the supplier in the auction process, usually the inventory will be available one day after the purchase order is made. The goods will be inspected by the inventory staff to ensure the fit of the physical condition as well as the quantity of the goods. Then the goods will be distributed to each unit on request that has been submitted. After all requests are met, the remaining supplies will be stored in the warehouse. But the number of inventory goods purchased at the time of the auction usually can not meet the needs for a year, so to overcome that problem, University will do a direct procurement. Every activity that occurs related to inventory will be recorded into the recording software which is the inventory application

This research analyze control activities on all of that process in inventory management according to Government Regulation No. 60 2008. Researchers used Government Regulation No. 60 year 2008 as standard because university is a part of government agencies which are what this rule is designed for. The result of control activities evaluation on inventory management at University of X based on Government Regulation No. 60 2008 can be seen in the following:

- Segregation of duties  
University of X has five stages in inventory management, so to implemented a good segregation the responsibility of each stages must be separated. Unfortunately, institution still not fully doing it in every process and duties. Although they already separated financial, and managing duties in different division. There is still one employee in general affairs division with several duties where he manage all of acceptance, distributing, inventorying and recording of goods activities. This duties should be separated from one and another.
- Authorization of transaction and activities  
Institution has established and implementing a good authorization of transaction and activities. This can be seen from the needs for authorization from superiors first before transaction can be processed. They also implemented a general and specific authorization, an example for general authorization is a fixed pricing range for purchasing and for specific ones is authorization of goods purchase transactions outside the auction process.
- System information controls  
Institution used two kinds of application system for recording its transaction which is Inventory Application and SIMAK-BMN. In using this application, only the employee who in charges have the id and password to access the application and only for their each representative works. Their computer also protected by using password. To reduce risk of an error in input data because the employee not used using this application, institution also established rules in mutation and rotation employee where this mutation/rotation only happen every four years so employee in charge don't change too frequently. But the institution never audits its information system either internally or externally.
- Physical controls  
Institution already had standard operational procedures (SOP) for several activities regarding inventories. But its been found that there are activities that has not been included in that SOP which is purchasing activities in the middle of period and also there is one work flow chart in that SOP that a bit unsophisticated so its hard to understand how transaction is being process. Institution provides a small warehouse for saving its inventories only employee in charges that has key to access it. But this warehouse doesn't have item's maps and there is no stock card.
- Institution performance review

Review of institution performance done by general affairs and finance staff also by SPI team. First general affairs staff do a reconciliation of their data regarding inventories, after that they will compare their data with transaction data that has been recorded by finance staff. They analyze and compare inventory values this year with last year. The SPI team do their review only when needed such as when it's been found by public accountant firm or BPKP that there is something wrong with their data, only then SPI team will do their work. Their work flow start from doing preliminary survey to learn and figuring how their auditing work should be done and also how much sampling that needed for testing.













- Human resources development  
Institution already posted their vision and mission on their official website which is [www.unri.ac.id](http://www.unri.ac.id) and also displayed it on their entrance door. On explaining description of each employee job desk, institution created a form with every things that need be done by one employee each year. Institution also send their employee for seminar and workshop in order to improve their competences.
- Performance indicator establishment and review  
Performance review already been implemented in institution where the head of administration, internal affairs subdivision will grade his/her staff works each month.
- Accurate and timely recording  
Institution record their work with an application so the reports from its will be accurate and timely.
- Accountability for resources and recording  
Institution has appointed one employee who in charge for authorization and also another employee to manage inventory in day-to-day basis. But because there is lots of things to do in managing inventory, that employee has a big responsibility.
- Adequate documentation  
Because institution used application for recording their transactions, there is not much printed documents that need to be archived. All of data has been documented and saved in application.

The weaknesses in doing control activities of inventory management that have been identified in institution and controls that should be done to minimize or even reduce the existing problems are:

- Segregation of duties  
The weakness that has been found is segregation of duties not fully implemented. It can be obtained from the job desk that one employee has covering almost all of stages in managing inventory which in planning, purchasing, receiving, inventorying and recording. To fixed this problem, institution should hire a new employee to share this workload and to reduced the risk of fraud.
- System information controls  
The weakness that has been found in system information is the application use never been audited. This can be fixed when the university conduct a periodical audit of information system.
- Physical controls  
Problem that has been found in physical control activities is the standard operational procedures that has been established not covering all of activities that happen in inventory like a purchasing activities in the middle of period. There is no standard procedure for that activities and also its been found that there is one work flow that has an unsophisticated design so its hard to understand how transaction being processed. Institution should create and design new standard operational procedure and work flow to fixed that problem. For the proposed standard operational procedure described as follows.

Table 1 illustrates work flow that should be implemented when doing a direct procurement. Where upon request, BMN staff makes proposed procurement of goods approved by Head of BMN subdivision and authorized by Commitment Making Officer. The purchase of goods is carried out by the Procurement Official and after the goods are purchased, will be submitted to the BMN staff to be distributed to the unit in need. While Table 2 is just an improve flowchart form the old SOP that university already owned.

**Table 1. SOP Design for Direct Procurement**

No	Aktivitas	Pelaksana							Mutu Baku		
		Unit Kerja/Fakultas/ Lembaga	Staf BMN	Ka subag BMN	Kabag UHTP	Pejabat Pengadaan Barang	PPK	Penyedia Barang	Persyaratan/ Perlengkapan	Waktu	Output
1	Mengajukan permintaan barang								Formulir permintaan barang	1 hari	Terdapat barang konsumsi yang akan diminta
2	Membuat daftar barang yang akan dibeli dan surat permohonan pengadaan						Tidak Setuju		Formulir permintaan barang	1 hari	Terdapat barang konsumsi yang akan dibeli
3	Menelaah daftar permintaan barang dan memberikan otorisasi								Daftar barang yang akan dibeli	30 menit	Terdapat nya daftar pengadaan barang
4	Memberikan otorisasi dan mengajukan perencanaan pengadaan barang ke PPK								Daftar barang yang akan dibeli, Surat Permohonan Pengadaan Barang	30 menit	Terdapat nya daftar pengadaan barang
5	Menyetujui perencanaan pengadaan barang								Surat Permohonan Pengadaan Barang	30 menit	Terdapat nya daftar barang konsumsi
6	Membuat spesifikasi barang dan HPS						Setuju		Dokumen isian dan HPS	3 hari	Diketahui nya informasi mengenai pengadaan
7	Menyiapkan dokumen terkait pengadaan barang								Dokumen isian terkait pengadaan	1 hari	Diketahui nya informasi mengenai pengadaan
8	Menetapkan penyedia barang								Do kumen spesifikasi dan HPS	3 hari	Ditentukannya penyedia barang
9	Melaksanakan pengadaan barang								Barang Konsumsi	1 hari	Barang dibeli
10	Menyerahkan barang dan bukti pembelian serta serah terima barang								Barang Konsumsi, Bukti Pembelian dan Serah Terima <u>Barang</u>	Sesuai kesepakatan	Barang tersedia
11	Menerima barang								Barang Konsumsi	Sesuai kesepakatan	Barang tersedia
12	Menginput seluruh data transaksi ke dalam aplikasi persediaan		 						Aplikasi Persediaan	1 jam	Tercatat data transaksi ke dalam aplikasi persediaan

**Table 2.** SOP Design for Accepting, Storing and Distributing Inventory Goods

No	Aktivitas	Pelaksana					Mutu Baku		
		Penyedia Barang dan Jasa	Pejabat Pengadaan Barang	Staf BMN	Kasubag BMN	PPK	Persyaratan/Perlengkapan	Waktu	Output
1	Menyerahkan barang dan mengisi Formulir Penerimaan Barang disertai Surat Pernyataan Kesanggupan						SPK, Formulir Penerimaan Barang	1 Hari	Barang dan Formulir Penerimaan sesuai dengan barang yang diterima
2	Menerima dan memeriksa Barang sesuai Surat Pesanan dan membuat Berita Acara Pemeriksaan Barang						Formulir Penerimaan Barang, Surat Pesanan	1 Hari	Barang dan Berita Acara Pemeriksaan
3	Membuat Berita Acara Serah Terima barang						Formulir Penerimaan Barang & Berita Acara Pemeriksaan	1 Hari	Berita Acara Serah Terima
4	Menerima dan memeriksa barang disertai Surat Pesanan dan Formulir Penerimaan Barang, bila disetujui menandatangani Berita Acara Serah Terima atau jika tidak setuju mengembalikan ke Penyedia Jasa						Formulir Penerimaan Barang, Surat Pesanan & Berita Acara Serah Terima	1 Hari	Barang tersedia
5	Menyimpan barang ke gudang						Barang yang tersedia	1 Hari	Barang tersedia dan tersimpan di gudang
6	Mencatat ke dalam aplikasi persediaan						Aplikasi Persediaan	30 Menit	Tercatat data transaksi ke dalam aplikasi persediaan
7	Melaporkan hasil penerimaan serta pemeriksaan barang ke PPK						Berita Acara Pemeriksaan & Berita Acara Serah Terima	1 Hari	Laporan

Another problem that has been found is the warehouse does not have a goods maps and goods that being saved in the warehouse does not have a stock card. To fix this, institution should design the goods map and also use a printed stock card for the goods in warehouse.

- Performance indicator establishment and review

The weakness that has been found in performance indicator establishment and review is the objectivity of employee in doing their review and assessment of their subordinate's performance. Because of the formulation used in the performance appraisal has an aspect where the final value obtained by the subordinate will affect the assessment of his superiors result in the reluctance in giving a bad scores when their subordinate not giving their optimal effort. To fixed this problem, institution should create a new key performance indicator where its really independent and not biased so the assessment will show the actual performance.

- Accurate and timely recording

The problem that has been found is a delay in recording inventory transactions occurring into inventory applications. The deferred transaction in its input into the application system is the transaction of goods requests from the unit, the general affairs staff usually will collect several transactions first, before input it into Inventory Application. This problem can be fixed with a good implementation of monitoring system where the supervisor really oversees the work of their subordinates.

- Accountability for resources and recording

The weakness that has been found in accountability for resources and recording is related to the problem in segregation of duties. Because there is no segregation of duties in managing the inventories then the responsibilities held by employees become too big. So the solution for this problem is the same as the solution for segregation of duties which is the institution should hire a new employee so they can share workload and responsibility.

- Adequate documentation

The weakness in adequate documentation is there is storage cabinet exclusively for inventory related document so the archived of inventory documents is still mixed with other asset

transaction documents. Institution should provide at least a space exclusively to archive documents that related in inventory management.

However as COSO states regarding the importance of personnel in internal control, no matter how well the system is designed and implemented if the personnel is not ready to implement it then the expected results and goals to be achieved to be hampered. So it takes the cooperation and seriousness of the employees in the implementation of control activities and managing the inventory.

## 5. Conclusions

The purpose of this study is to analyze internal control system that focused on control activities related to inventory management at University of X and aims to provide a recommendation to manage problems that occurred. The results show that there are weaknesses of university in conducting control activities on inventory management. The weaknesses found are segregation of duties is not evenly apportioned, accounting information system is not audited, the SOP does not cover the entire activity, unsophisticated flowchart, there is no map and stock card in warehouse, the assessment performed by the superiors at their subordinate's performance not objective, delay in inputting data to inventory application, the responsibility of inventory staff is too big, there is no specific place to store inventory documentations.

This research implication are university should hire a new employee to share some workloads and responsibility, do audit on system information regularly, use the proposed standard for direct procurement and a new flowchart. Also, equipped the warehouse with maps and stock card, design a new key performance indicator, implement a good monitoring system and also provide an exclusive space for inventory documentation.

This study has a few limitation. First, researchers can not access the audit report of the internal control team of university and also there is not much data can be collected regarding accounting information system. So for further research, researchers suggest to analyze more comprehensively the performance and role of the organization's internal audit team and collect more data on accounting information systems such as audit reports.

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