

# Evaluation the Effectiveness of Audit Design and Implementation in Sub-cycle Procurement Information System: Case Study in PT. X

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**Keywords:** Effectiveness, Audit Design, Audit Implementation, COBIT 5, 3 Lines of Defense

**Abstract:** This research is based on the problem found in procurement sub-cycle information system that is access violation, delay and wrong in decision making and lots of goods and services are excluded from cost recovery calculation by government. This research is aim to evaluate the effectiveness of audit design and implementation in sub-cycle procurement information system. This research is qualitative research. This research method is case study. The research subject was PT. X (oil and gas company) and Department Internal Audit and Compliance as an analysis unit. The sample was audit program in 2017. Research instrument are interview and documentation. The result showed that audit design is not effective but audit implementation is effective. The audit design is not effective because the same problem often occurs even though internal auditor has conducted an audit and provide recommendation that has been implement by management. Therefore, audit program cannot effect achievement of internal auditor objective that is to add value and improve organization process to accelerate achievement of company objective (strategic, operations, reporting and compliance). The main cause of the ineffective audit design is internal auditor not perform all role according to COBIT 5 framework and doing the wrong role according to 3 lines of defense framework, so that, internal auditor cannot identify the significant risk and root of problem. Therefore, this research provides the design of internal auditor role that complied with COBIT 5 and 3 lines of defense framework and 7 audit program design to eliminate the problem of procurement sub-cycle information system in PT. X.

## 1 INTRODUCTION

Oil and gas industry has a lot of risk that is blowout and oil spill, expensive investment but uncertainty of existence of oil and gas, and numerous regulations. Especially in Indonesia, regulations depend on contract between government and oil and gas company. Many oil and gas company in Indonesia hold product sharing contract with type cost recovery. As consequence, oil and gas company should make work program and budget and wait authorization for expenditure documents from government to begin buy goods and services. If the oil and gas company not complied with government regulations, all goods and services that has been buy will exclude from cost recovery calculation.

The main factor of risk above is procurement mechanism and human skill and capability who is part of information system. Many oil and gas

company use information technology and application (like SAP) in procurement process. Therefore, auditor should keep up with development of information system in order to evaluate reliability of communication networks competently (Weber, 1999:17). But in real, from a lot of instrument provide by framework, auditor only use maturity level to audit the information system because easiness (Zhang and Fever, 2013:395). According to Gordon (1998:103), one of factor that affected blowout in oil and gas industry is organization that is control, planning/ organization, and audit procedure.

PT. X has many problems in procurement sub-cycle. The problem is KPPU give sanction to PT.X for jack-up drilling service, empty goods and services while needed, a lot of goods and services are excluded from cost recovery calculation, human error, access violation on AFE Account, WBS master, budget and recording expense, access AFE that has been closed, not all of committee member

sign WP&B, access violation in making invoice, and record asset that there is no physical existence. This problem has been identified by internal auditor and audit has been performed. Internal auditor has given recommendation and management has been doing the recommendation. But the same problem always occurs in next interim and next year.

## 2 METHODOLOGY

This research is qualitative research and the method applied in this research was case study with mixed method approached. According to Creswell in Sugiyono (2017:404) mixed methods research is an approach to inquiry that combines or associated both qualitative quantitative forms of research. It involves philosophical assumptions the use of quantitative and qualitative approaches, and the mixing of both approached in a study. Subject in this research was PT. X (oil and gas company) with Department Internal Audit and Compliance as an analysis unit. The sample was audit program in 2017. The research instrument was interview and documentation.

In this research to analyze the conformity of internal auditor role with COBIT 5 framework were use RACI chart from COBIT 5 framework and to analyze the conformity of internal auditor role with 3 lines of defense framework were use 3 lines of defense framework. To evaluate the effectivity of audit design, this research divided the evaluation into 2 categories effectiveness of audit design that is effectivity based on criteria and effectivity based on the effect.

Effectivity based on criteria refers criteria from Sawyer (2006:235) and Information System Audit and Control Association (ISACA) (2016:7, 13-15) as an indicator and effectivity based on effect of audit program is refers to 4 organization objective (strategic, operations, reporting and compliance) according to Pickett (2005:13-14) and the 4 effect of audit information system according to Weber (1999:11) as an indicator. To evaluate the effectivity of audit implementation will perform with compare all working paper with audit design (audit program).

## 3 RESULT AND DISCUSSION

From research that has been conducted, the result show that internal auditor has been doing 2 from 4 roles in COBIT 5 framework that is responsible (R) and accountable (A). But internal auditor not doing another role that is consulted (C) and informed (I). Internal auditor never showed his existence as a

place for management get advice and for discuss about problem that faced by management. Therefore, internal auditor always faced as investigator by management. The second result is internal auditor not complied with 3 lines of defense framework because internal auditor actively involved in making internal control system (1st line) and risk management (2nd line).

For the main objective in this research that is evaluate the effectiveness design and implementation of audit in procurement sub-cycle information system, this research will spread into evaluate audit design and evaluate audit implementation. The third result that is audit design is complied with all criteria in Sawyer and ISACA (effective in criteria) but not help internal auditor to fulfil internal audit objective that is to accelerate achievement of organization objective (strategic, operations, reporting and compliance) so that audit design not effective in effect/ result.

However, the effectivity of audit program is achievement of audit program objective, which audit program is internal auditor tool to achieve internal audit objective that is to add value and improve organization operation to accelerate achievement of organization objective (strategic, operations, reporting and compliance) as an indicator to evaluate audit design effectiveness. Therefore, this research conclude that audit design is not effective. The fourth result is audit implementation is effective because all audit program has been done while audit is conducted.

After get the result that audit design is not effective, this research will combine all result from evaluate internal audit role according to COBIT 5 and 3 lines of defense to know what the root of problem that cause audit design is not effective. The result is audit design not effective because internal auditor not perform all role according to COBIT 5 and wrong doing role according to 3 lines of defense, internal auditor cannot identify significant risk, weakness control that should be audited, determination of audit objective and subject audit for interview (All of this process is before internal auditor writes the audit program (designing audit)).

This result is aligned with Sawyer (2006:217) that said one of the function of audit internal professional is to show that the program is effective-only emphasize to significant things and to give evidence that significant risk and control has been identified and evaluated.

Furthermore, Sawyer (2006:217) said that analysis that made with help from operational manager- can give operational objective, identified

actual or potential risk, and determine the right control for this situation. That analysis can produce thoughtful, relevant, effective and economics audit program.

Therefore, this research gave 2 output to improve effectiveness of audit design that is the internal auditor role that conform with COBIT 5 and 3 lines of defense framework and 7 audit program to solve the root of problem that identified in this research.

The role of internal auditor for Department Internal Audit and Compliance is divided into 2 major that is role in governance and role in management. The role of internal auditor in governance is internal auditor should act as place of management to ask about job allocation, responsibility and management act in monitoring IT and internal auditor should act as place of management to ask about operation of information system that is use and allocation of resource, satisfied stakeholder need and risk management on IT. The role of internal auditor in management is actively act as consultant in project management, requirement management and IT operation.

This figure below, describes the suggested internal auditor's role (figure 1) and the expected effect of implementation of the role of internal auditor that has suggested (figure 2):

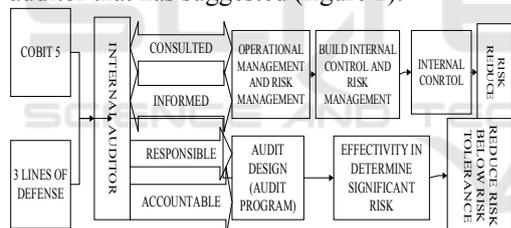


Figure 1: Role of Internal Auditor

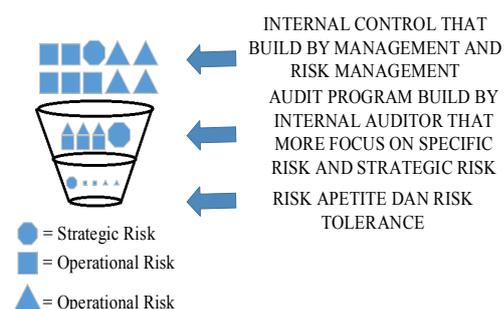


Figure 2: The Effect which were Expected from Implementation the Role of Internal Auditor

The audit program in this research contain 7 audit program that disembugue into 3 part that is:

- 1) Audit design for data redundancy

To solve wrong and delay in decision making problem. There is 1 audit design (audit program) for audit data redundancy, that is:

Table 1: Audit Design (Audit Program) for Data Redundancy

AUDIT PROGRAM FOR DATA REDUNDANCY
<p><b>Audit Objective:</b> To ensure control adequacy to mitigate data redundancy</p>
<p><b>Time:</b> Interim 1</p>
<p><b>Risk:</b> 1) Wrong in decision making 2) Delay in decision making</p>
<p><b>Control:</b> Memory capacity is allocate for each department</p>
<p><b>Test:</b> 1) Inspect standard operating procedure (SOP) and compare with how end user using worksheet 2) Take a sample of data redundancy and identify who is updating the data redundancy 3) Inspect and compare all data redundancy (see the data content and what the difference in content of each data) 4) Compare all data redundancy with data that has been attached in SAP (see the content and compare the difference) 5) Discuss, confirm and ask to the user (data owner and data updater) for the reason of why data redundancy</p>
<p><b>Document:</b> 1) Worksheet in Department Supply Chain Management (procurement sub-cycle) memory 2) Worksheet that has been attached in SAP</p>

- 2) Audit design for database goods and services  
To solve ordering goods and services that not needed, ordering to not qualified supplier even though supplier approved by SKK Migas, goods and services are exclude from cost recovery calculation by government and recorded goods that no physical existence. There is 2 audit design (audit program) for audit database goods and services, that is:

Table 2: Audit Design (Audit Program) for Goods and Services Database

AUDIT PROGRAM FOR GOODS AND SERVICES DATABASE
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<p><b>Audit Objectives:</b> To ensure control adequacy to mitigate purchase requisition for goods and services that not needed.</p>
<p><b>Time:</b> Interim 1</p>
<p><b>Risk:</b> Purchase requisition for goods and services that not needed</p>
<p><b>Control:</b> Access control</p>
<p><b>Test:</b> 1) Compare all goods and services catalog with physic of goods and services 2) Check addition or changes of catalog parameter or catalog itself 3) Compare changes or addition of catalog parameter or catalog itself with purchase requisition (focus on time of occurrence) 4) Check log and see the person who makes changes or addition on catalog parameter or catalog itself 5) Re-performance: a) Make a changes on catalog or catalog parameter and makes purchase requisition b) Make an addition on catalog or catalog parameter and makes purchase requisition 6) Inspect all document of parameter catalog</p>
<p><b>Document:</b> 1) Record or documentation of changes or addition on catalog or catalog parameter 2) Record of purchase requisition time 3) Documentation of purchase requisition time 4) Log record of changes or addition on catalog or catalog parameter 5) Log record of access to goods and services database</p>

Table 3: Audit Design (Audit Program) for Supplier Database

<p><b>AUDIT PROGRAM FOR SUPPLIER DATABASE</b></p>
<p><b>Audit Objective:</b> 1) To ensure control adequacy to mitigate purchasing goods and services that cannot include in cost recovery calculation 2) To ensure control adequacy to mitigate purchasing to unqualified supplier even though the supplier approved by SKK Migas.</p>
<p><b>Time:</b> Interim 1</p>
<p><b>Risk:</b> 1) Purchase goods and services that cannot include in cost recovery calculation 2) Purchase to unqualified supplier even though</p>

<p>the supplier approved by SKK Migas.</p>
<p><b>Control:</b> 1) Access 2) Authorization</p>
<p><b>Test:</b> 1) Obtain purchase requisition (PR) and purchase order (PO) document. 2) Compare purchase requisition (PR) and purchase order (PO) document. 3) Check log to know who make purchase order (PO) document 4) Inspect supplier parameter document and compare with parameter in supplier database 5) Check log of changing in supplier database parameter 6) Take a sample (focus on big and small supplier) and compare supplier qualification with parameter in database 7) Re-performance: a) Input supplier name that you want to win with not changing the parameter b) Input supplier name that you want to win with changing the parameter</p>
<p><b>Document:</b> 1) Supplier parameter 2) List of SKK migas supplier 3) Log list of changing in database supplier parameter 4) Supplier pra-qualification document 5) Purchase requisition (PR) document 6) Purchase order (PO) document</p>

3) Audit design for administration role in SAP  
To solve access violation problem. There is 4 audit design (audit program) for audit administration role in SAP, that is:

Table 4: Audit Design (Audit Program) for SAP Support SOP

<p><b>AUDIT PROGRAM FOR SAP SUPPORT SOP</b></p>
<p><b>Audit Objective:</b> To know the procedure of giving advice for updating role in SAP</p>
<p><b>Time:</b> Interim 1</p>
<p><b>Risk:</b> There is a person who have 2 or more roles in SAP</p>
<p><b>Control:</b> Segregation of duties</p>
<p><b>Control:</b> 1) Inspect SOP of SAP Support in a process to</p>

giving advice for updating role 2)Observe the evaluation mechanism in determine the suitable role
<b>Document:</b> SOP of SAP Support in giving advice for updating role

Table 5: Audit Design (Audit Program) for SAP Security Admin SOP

<b>AUDIT PROGRAM FOR SAP SECURITY ADMIN SOP</b>
<b>Audit Objective:</b> To know the role updating process
<b>Time:</b> Interim 1
<b>Risk:</b> SAP Security Admin forget to revoke old role
<b>Control:</b> Segregation of duties
<b>Control:</b> 1)Inspect SOP of SAP Security Admin in updating role 2)Observe updating role process
<b>Document:</b> SOP of SAP Security Admin in updating role

Table 6: Audit Design (Audit Program) for Information System and SAP Development, Expansion and Maintenance Documentation

<b>AUDIT PROGRAM FOR INFORMATION SYSTEM AND SAP DEVELOPMENT, EXPANSION AND MAINTENANCE DOCUMENTATION</b>
<b>Audit Objective:</b> 1) To know information system access error 2) To know information system fault that can infiltrated by parties outside the company 3) To detect and prevent the using of double role because of the faulty of SAP Support and SAP Security Admin 4) To know the existence of SAP Administrator
<b>Time:</b> Interim 1
<b>Risk:</b> Access that not conform with function and position but authorized by SAP
<b>Control:</b> Access
<b>Test:</b> 1) Inspect development, expansion and maintenance documentation 2) Try to access from every information system network

3) Check the existence of SAP Administrator function
<b>Document:</b> 1) Information system and SAP development documentation 2) Information system and SAP expansion documentation 3) Information system and SAP maintenance documentation

Table 7: Audit Design (Audit Program) for SAP Administrator SOP

<b>AUDIT PROGRAM FOR SAP ADMINISTRATOR SOP</b>
<b>Audit Objective:</b> To ensure that SAP Administrator has gave the control adequacy for all access in company information system network (SAP)
<b>Time:</b> Interim 2
<b>Risk:</b> Access that not conform with function and position but authorized by SAP
<b>Control:</b> Segregation of duties
<b>Test:</b> 1) Check SOP of SAP Administrator 2) Observe SAP Administrator Activity 3) Compare SOP with observation result of SAP Administrator activity
<b>Document:</b> SOP of SAP Administrator

#### 4 CONCLUSIONS

According to research that has been conducted, the conclusion is audit design is not effective but audit implementation is effective. The problem that cause audit design is not effective is internal auditor not doing all role according to COBIT 5 (only responsible and accountable but not consulted and informed) and wrong doing role according to 3 lines of defense (internal auditor actively involved in make internal control system and risk management). This problem make internal auditor cannot identify significant risk and root of the problem in a process to design audit (audit program).

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