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EVALUATION OF BANK X'S INTERNAL INFORMATION SYSTEM TO IMPROVE THE DATA QUALITY OF REPORT TO FINANCIAL SERVICES AUTHORITY (OJK)

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ABSTRACT

Banks supervised by the Financial Services Authority (OJK), required to report debtor data through the Financial Information Service System (SLIK). So that quality data reporting becomes important for banks. A qualitative study, conducted in 2022 by conducting interviews with 3 people from the Internal Control unit who has work experience at Bank X for more than 5 years. The interviewee considered has understood the internal information system of Bank X. Conduct deep dive analysis to review of Bank X's internal documents related to the internal information system. Reconciliation and verification procedures between sub-systems are the main factors that need to be improved to increase the quality of debtor information reporting data on SLIK. The procedure will not work if it is not supported by the awareness of each party involved. This case study describes how to improve data quality through internal information systems improvement based on the COSO internal control framework.

Keywords: Data Quality, Financial Information Services System.

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1. INTRODUCTION

Evaluation of the internal information system is very important for banks that are supervised by regulators such as the Financial Services Authority (OJK). This is because OJK requires banks to report debtor information through the Financial Information Service System (SLIK). SLIK is an application system in the form of client and web managed by OJK to be used as a means of submitting debtor reports and requests for debtor information by reporting parties. In submitting debtor information, the bank involves an internal information system to generate data that will be reported through the SLIK. Data reported through the SLIK must have 5 criteria, namely complete, accurate, current, complete and puntual. This is regulated in OJK regulation (POJK) No. 64/POJK.03/2020, and reporting data that do not meet these criteria, will be subject to administrative sanctions in the form of fines. In addition of sanctions in the form of fines, OJK will also impose sanctions in the form of delaying the provision of debtor information if the bank is late in correcting the reporting data submitted by the OJK.

The importance of information systems has also been examined in previous studies. Andini et al (2020) conducted research on telecommunications companies regarding the evaluation of information systems using the Total Data Quality Management (TQDM) method. The results of the study stated that the information system that not updated could cause the data to be 'unclassified' when pulled, thus affecting the accuracy and validity of the data in the library system. Riyanto et al (2020) in their research using data driven and process driven methods in library information systems, to improve data quality need increase the competence of human resources. However, until now there has been no research that comprehensively discusses the evaluation of the internal banking information system, especially the information system used for reporting debtor information to regulators.

Based on initial information obtained from Bank X, from 2017 to 2020 there were data errors in customer reports submitted to OJK. As a consequence, during those 4 years OJK imposed a fine to Bank X of 2.17 billion rupiah. The following shows the error data that caused the 2017-2020 OJK fine to Bank X (Table 1).

Table 1 Imposition of OJK SLIK fines for Bank X 2017 - 2020

Year	Problems	Frequency	Nominal
2017	- Unreported debtor data - Delay correction of reporting	7x	1.4 Billion
2018	- Delay correction of reporting	1x	74.5 Million
2019	- Unreported debtor data - Delay correction of reporting - Differences with others report	4x	489.4 Million
2020	- Delay correction of reporting - Differences with others report	3x	215.5 Million
Total		15x	2.17 Billion

Source: Bank X . internal documents

Table 1.1 summarizes the problems with data quality of Bank X that did not meet the dimensions of data quality according to OJK requirements, namely complete, accurate, current, integrated and punctual. For this issue, it is necessary to evaluate the bank X's internal information system to improve the quality of OJK reporting data through SLIK so that the author can get the answer of "how to improve the data quality report SLIK OJK through evaluation of the bank's internal information system?"

The evaluation is conducted by identification of issues in the internal information system, followed by analysis of the root cause to provide recommendations that can improve the quality of SLIK reporting data at Bank X, as follows:

a) Identify internal information system weaknesses by conducting open interviews with 3 employees in the internal control unit who have more than 5 years of experience at Bank X. Employees who have more than 5 years of work experience are considered have a good understanding of the bank's internal information system for SLIK reporting. In addition, the researcher also studied internal documents in the form of the Operational Risk Profile Report (LPRO) Quarter 1 2022, the results of control testing for 2020-2022, Current SLIK Reporting Operational Technical Instructions and internal webinar material about the SLIK OJK in 2022.
b) Root cause analysis is conducted by referring to the 2013 COSO framework, which is limited to the control activity component.
c) Recommendations are given to overcome the weakness of control activities that have been previously analyzed with the 2013 COSO framework.

2. LITERATURE REVIEW

Evaluation of information systems to improve data quality has been investigated in several previous studies. The difference in the dimensions of the quality of the data studied, data collection methods and research methods to obtain different recommendations. The research focuses on banking information systems, that might be different from other industries. Research can enrich knowledge in the field of information systems and can be used as a reference for evaluating internal information systems for practitioners in the banking industry. The comparison of this study with the previous one is shown in Table 2.

Table 2 Comparison Previous Research

Aspect	Riyanto et al (2020)	Andini et al (2020)	Karami, A.F. (2018)	This research
Data Quality Dimension	• Completeness • Accuracy • Punctual	• completeness • accuracy • validity	The 16 dimensions are Accessibility, Appropriateness, Trustworthiness, Completeness, Conciseness, Consistency, Ease of Manipulation, Free from Errors, Ease of Interpretation, Objectivity, Relevance,	In line with POJK Number 64 of 2020: • completeness • accurate • current • integrate • punctual

			Reputation, Security, Timeliness, Ease of Understanding and Added Value.	

Table 2 Comparison Previous Research

Aspect	Riyanto et al (2020)	Andini et al (2020)	Karami, A.F. (2018)	This research
Method of collectiondata	literature review	Interview and observation	Interview	• Interview • Internal information system review
Research methods	Data Driven andProcess Driven	Total Data Quality Management (TDQM)	Interpretive based on the perspective and experience of the informant	Analisa terstruktur berdasarkan *COSO Internal Control Framework asp*
Recommendation	HR competence is the main thing	• not update the information system • Error in query application	From 16 dimensions studied, 6 dimensions need improvement	Standards or SOP for control activities

Source : Processed by the author

Table 2 shows a comparison between previous studies and this study. The first difference is in the dimensions of the data quality studied, that is current and integrate dimensions. In addition, this dimension is more practical because it is applied to POJK No. 64/POJK.03/2020 regarding the criteria for reporting SLIK data. The second difference is the data collection method used is interviews and reviews of internal information systems. Internal information system reviews are not limited to certain documents so that the analysis can be conducted deeply and comprehensive.

In this research, evaluation of the internal information system is carried out using the 2013 COSO framework, especially on the control activity component. The conceptual framework used in this research is to answer the question “how to improve the quality of OJK SLIK reporting data through evaluation of the bank's internal information system?” shown in Figure 1.

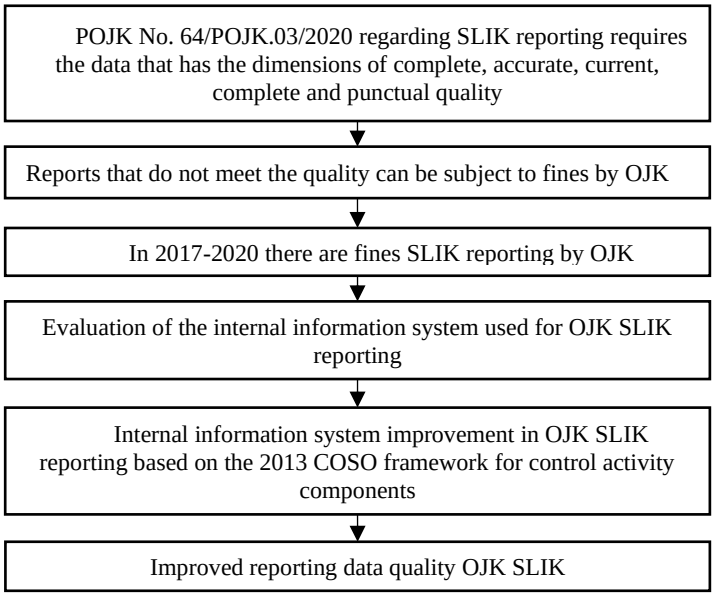

Figure 1 Conceptual Framework

In Figure 1, the quality of OJK SLIK reporting data improvement requires the internal information system improvement. The internal information system improvement are conducted based on analysis of weaknesses in control activities. The control activities referred to the 2013 COSO internal control framework. The adequacy of control activities in the internal information system can improve the quality of data as required by OJK, namely complete, accurate, current, complete and punctual. In the following, the data quality and COSO internal control framework will be explained.

2.1. DATA QUALITY

In order to obtain quality information that can be used by management in decision making, the data input into the information system must meet the characteristics of complete, accurate, current, integrate, and punctual. The explanation for each of these data qualities is as follows (Romney, 2021)

a) Complete: there are no missing activities from the real situation.
b) Accurate : accurate data is data that is correct, free from error, accurately represents activities.
c) Current : data that can reflect current conditions.
d) Integrate : integrate data with one another.
e) Punctual : data provided in time to make decisions

2.2. COSO INTERNAL CONTROL FRAMEWORK

The COSO internal control framework has 5 interrelated components (COSO, 2013). The explanation of the 5 components is as follows:

a) Control environment: a set of standards, processes and structures as the basis for the implementation of internal control throughout the organization.

b) Risk assessment: a dynamic process to identify and analyze risks related to the achievement of objectives.

c) Control activities: actions established through policies and procedures to help ensure that management directives are implemented in order to minimize the risk of achieving objectives.

d) Information and communication: an iterative and continuous process to obtain, share and provide information internally.

e) Monitoring activities: used to ensure each component of internal control is properly functional.

Each component in the COSO (2013) control framework can add value and can be applied by all entities. In this study, the components used for analysis and answering research questions are limited to the control activity component.

2.2.1 CONTROL ACTIVITY

Control activities are actions established through policies and procedures that help ensure management direction to mitigate risks in achieving company goals (COSO, 2013). Control activities are divided into two, namely general control and transaction control. Transaction control can be manual and automatic. The types of transaction control activities carried out can be grouped into policy control and procedure determination as well as technology control. Below are the types of transaction control:

a) Authorization and approval: ensuring that a transaction or input data is valid
b) Verification: compare two or more items with each other or compare items with policies and follow up when two items do not match or items do not comply with policies.
c) Physical controls: equipment, supplies, securities, cash and other assets are physically secured (e.g. locked or guarded storage areas with restricted access to authorized personnel and periodically counted and compared with the amounts indicated in the control records).
d) Control over fixed data: Fixed data, such as price master files are often used to support transaction processing in business processes. Control activities throughout the process to fill, update, and maintain the accuracy, completeness and validity of data carried out by the organization
e) Reconciliation: Compares two or more data elements, and if there is a difference, an action is taken. For example, reconciliation of daily cash flows. Reconciliation addresses the completeness and accuracy of the transaction process.
f) Supervision control: assessing whether other control activities (authorization and approval, verification, physical control, control over fixed data, reconciliation) are carried out completely, accurately and in accordance with policies and procedures.
g) Control Through Policies and Procedures
   Control activities are propagated in the company by establishing what is expected through policies and procedures. As for the implementation of policies and procedures, the following points must be considered:
   a) Management determines control activities that are built into business processes and daily activities of employees through policies to determine expected actions.
   b) Assign responsibility and accountability for policies and procedures implementation, or appointed personnel from the business unit or where the risk
   c) Performing on time, procedures that is not on time can reduce the benefit of control activities.
   d) Take corrective action
   e) Using competent personnel
   f) Reassess policies and procedures

3. RESEARCH METHODS

The research uses qualitative methods with the main data source being the results of interviews and supported by a review of Bank X's internal documents for deep dive analysis. Interviews question is open question that can be changed according to the responses of the respondents. The sources that used to build the interview question by studying data quality aspect that required by OJK, document that related with internal information system and issue that found in control testing result correlated with debtor data that report to SLIK. The interview conducted in 30 minutes for each respondent. Respondents are 3 people from the Internal Control unit who has more than 5 years of work experience with a minimum position is officer. The experience of the respondents is not only in the Internal Control Unit, but also in the Business Unit and Credit Operations, the units that involved in reporting debtor data to SLIK.

4. ORGANIZATIONS PROFILE

In reporting SLIK data to OJK, Bank X has a Standard Operating Procedure (SOP) related to reporting SLIK data to OJK. The SOP includes an explanation of the functions and responsibilities of the work units involved in SLIK reporting, as follows.

a) Wholesale Credit Operations (WCO)
   It is a unit at the head office that functions as a user guidance unit and as a reporting unit for SLIK to OJK.
b) Retail Credit Operations (RCO)
   It is a unit in the region or branch office that has the duties and responsibilities of receiving error data for SLIK data validation carried out by WCO, to be further coordinated with data input units in its area.
c) CISO Office Group
   The unit responsible for administering the user management of the OJK SLIK application.
~~e)~~d) IT Application & Support Group
   Receive and handle incidents related to database errors and perform issue management with IT Infrastructure & IT Application Development Group
~~f)~~e) IT Infrastructure Group
   Act as the second line in helping to handle incidents related to data communication network infrastructure to report SLIK and coordinate problem management with the IT Application & Support Group.
~~g)~~f) Enterprise Data Management Group
   Checking and validating debtor data at the Datawarehouse, providing data at the Datawarehouse for SLIK reporting, and providing or referencing temporary solutions to problems with data availability at the Datawarehouse for SLIK reporting needs
~~h)~~g) Data Management Unit
   The data development unit coordinates with the data input unit to correct the error data from the validation results and monitor the error corrections made.

~~i)~~h) Data Input Unit

The data input unit that carries out data entry into the system or subsystem completely and correctly according to the source document. Data input units include branch offices and business units at the head office.

5. DISCUSSION

The evaluation process is conducted in several stages, that are: (1) describe the current internal information system of the bank by conducting interviews and studying internal documents to find weaknesses in the internal information system that not in accordance with OJK regulations or POJK No. 64/POJK.03/2020. (2) identify the weaknesses in the internal information system from the results of interviews and internal document studies. Technically, the problems identified in the results of interviews or studies of internal documents are grouped based on the dimensions of data quality that are affected (3) analyze root causes and providing recommendations for improvement used COSO 2013 internal control framework.

5.1. BANK X'S INTERNAL INFORMATION SYSTEM

In running its business, Bank X is supervised by regulators such as the Financial Services Authority (OJK) and Bank Indonesia (BI). The regulator requires Bank X to report customer data periodically. In fulfilling customer data required by regulators, Bank X involves an internal information system to produce reporting data. The reporting data are in the form of the customer's name, type of identity, economic sector of the business entity's customer, form of business entity, type of credit, credit quality or collectibility, financial statements and others. Then the data is reported to the OJK through the Financial Information Service System (SLIK) application. The SLIK application is an application system in the form of a client and web managed by the Financial Services Authority (OJK) that use as media of submitting customer reports and requests for customer information by bank.

The internal information system for generating SLIK reporting data is eMas. eMas is a core banking or core system owned by Bank X, where the data in eMas is sourced from the Integrated Processing System (IPS) and Branch Delivery System (BDS). Besides eMas, Bank X also has other core systems (Eximbills, ICS, NTFS, OPICS, SCM and Canalis). IPS is a system used by Bank X to process account creation, perform ratings or customer ratings using financial reports, perform Alert analysis or early monitoring actions on loans of 1 or 2 quality. However, the data used for SLIK reporting is only financial report data. . Meanwhile, BDS is a system used by Bank X to monitor and update existing customer data in real time. BDS is the main system because most of the data reported on the SLIK is sourced from BDS.

The data entered in the IPS and BDS systems must be valid because the data input into the system will have an impact on various things, including: (1) impact to the analysis of supporting business strategy decision making, (2) optimize bank operations and services to customers, (3) reports to stakeholders and regulators, and (4) financial,

reputation, compliance and legal risk management. So that problems that can occur due to low data quality are (1) constraints in the business analysis process, (2) complaints from customers, (3) inefficient data management and warning letters from regulators regarding data that is not in accordance with the regulatory.

5.2. IDENTIFICATION OF WEAKNESS IN THE INTERNAL INFORMATION SYSTEM OF BANK X

Identification of internal information system weaknesses is conducted by defining the process of inputting, processing and reporting data (Figure 2).

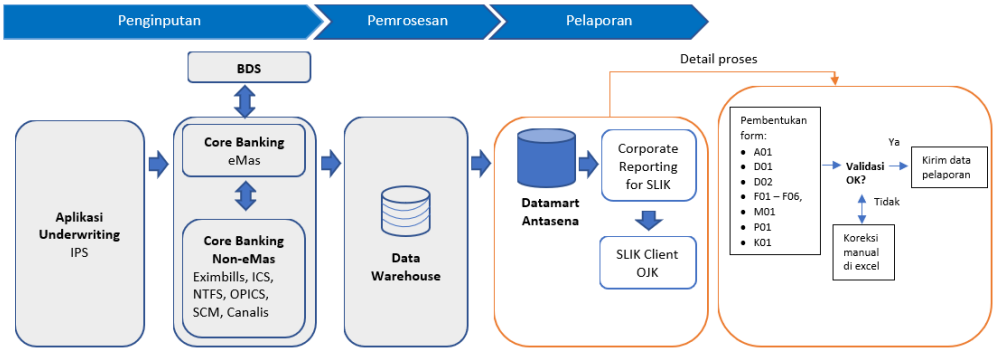

Figure 2 SLIK Bank X . Data Reporting Process

The data input process begins when the Customer Identity File (CIF) number is generated by the officer at the branch office. CIF is customer information that serves as master data. Information regarding customers contains information on name, identity number, company establishment date, address, telephone number, cellular number, electronic mail address, Taxpayer Identification Number (NPWP) and customer income and others. Controls testing at branch offices are carried out by the Area Business Control (ABC) work unit. The ABC unit is tasked with ensuring the validity of data input in the system.

After filling in the CIF data, a new CIF number is formed. Further data input is conducted by the Business Unit during the account creation process through the Integrated Processing System (IPS). Account creation requires data input in the form of the type of customer facility, credit limit provided, customer financial data, economic sector and others. The data entered in the IPS system will be continued to the eMas system. The eMas system is the bank's core system, where data for SLIK reporting is mostly sourced from eMas. The eMas system is directly integrated with the Branch Delivery System (BDS), which is an application that can display data on eMas in real time. The work units involved in the process of inputting data from the IPS system are Branch Offices and Business Units. Meanwhile, the work units that can input or update data directly through BDS are Business Units, Branch Offices and Credit Operations.

Data from the eMas system store in the data warehouse. Datawarehouse is a media for information technology throughout the bank environment that performs data storage, processing and development. The data in the data warehouse is not only used for OJK SLIK reporting, but also for reporting to other financial services such as Commercial Bank Reports (LBU) addressed to Bank Indonesia, and other reports. Internal control at the data warehouse is conducted on anomaly data. Anomaly data can be automatically detected by the system and stored in a separate location. The anomaly data can be directly integrated into the e-mail of the relevant work unit for validation, which is called control metrix. The units involved in data processing are the Enterprise Data Management (EDM) Group and the IT Unit. However, based on initial information from Bank X, monitoring in error data correction has not been fully conducted and still under development.

Data from the data warehouse that has been checked, validated and cleaned by using control metrix, is forwarded to Antasena Datamart. Antasena Datamart is a special system to collect data before reporting to the OJK SLIK system. Datamart Antasena is integrated with the Compliance & Reporting in One Platform (CR One) application, which is an internal bank application built and developed for SLIK reporting purposes to OJK. In the CR-One application, the data is grouped into several forms and then uploaded to the SLIK application user. As shown in Figure 1 at the reporting stage, SLIK reporting is divided into several forms. The explanation of each form is shown in Table 3:

Table 3 SLIK Reporting Form

Form	Explanation	Form	Explanation
D01	Individual customer	F05	Bank guarantee
D02	Business entity customers	F06	Other facilities
F01	Credit granted	A01	Collateral
F02	Joint account credit	P01	guarantor
F03	Securities	M01	Manager/owner
F04	Irrevocable LC	K01	financial report

Source: Company Internal Data

The excel form as shown in Table 3 is also frequently re-validated by the SLIK reporting unit, namely Credit Operations by confirming it to the data input unit.

Based on the results of interviews and a review of internal documents, the identification of weaknesses in the internal information system is as follows:

a) CIF data input does not match the physical document

In inputting CIF data, officers at branch offices enter data manually based on physical documents submitted by customers. However, a fast and high-volume work rhythm can affect to errors data input. In addition, branch office performance targets are also determined by the acquisition number of customers and the accuracy of the inputted data is not the focus of the performance assessment. This can impact to errors inputting CIF data. The current control of the CIF data system is in the form of an automatic system that provides notifications if there is CIF data

that is inputted the same as before. If it is known that the customer already has CIF with the same data, then the officer at the branch office is required to use the existing CIF for the account opening process. The system works way is by reading 4 (four) mandatory data fields, namely (1) Name, (2) Company Established Date, (3) Type of Identity, and (4) Identity Number. However, if there is a difference at least one field among the four mandatory data fields, the system will automatically form a new CIF. This is a weakness in Bank X's internal control system. The weakness is if there is an error in inputting one of the mandatory data (eg typo in the identity number), the system will automatically form a new CIF, so more concrete validation is needed for the 4 data mandatory with physical documents submitted by customers.

b) Data input in IPS is not fully integrated with BDS

The completeness and integrity of customer data reported to SLIK can be caused by the unintegrated data on the IPS system with BDS so that data in BDS is often updated manually by Credit Operations or Business Units. The IPS and BDS system that not integrated can be caused by the different interests of each IT system developer, both IPS and BDS system developers.

c) Changes in BDS data can be conducted by several work units

Some of the data in the BDS inquiry can be changed by units at branch offices, Business Units and Credit Operations. The obscurity e unit that updates in BDS can lead to potential inaccuracies and data updates. For example, customer data that has been updated can be changed again by the work unit using old data because of lack of knowledge unit. Authorization in accessing BDS inquiries and updating data can be done based on the access level attached to the employee's user ID. The work unit that carries out maintenance of the access level is the Credit Trade Operation (CTO) together with the Chief Information Security Officer (CISO). However, the provision of level access still needs to be reviewed based on the job description of the employee concerned so that there is no overlap in the data update process at BDS.

d) Delay in SLIK reporting correction

Before the credit facility is repaid by the customer, the facility must be reported to the OJK through SLIK. While still a customer, data changes often occur such as changes in management and shareholders, guarantee data, customer addresses, financial data and etc. Meanwhile, if there is a change in customer data, it must be updated through the IPS or BDS system. The work unit responsible for maintaining relationships with customers while the facility running is the Business Unit. So if there is a data change, the Business Unit will be the first who know about the change. Business Units also routinely withdraw SLIK for monitoring, Delays in SLIK reporting corrections are often caused by corrections to reporting data in the previous reporting period. The data improvement is based on complaints from customers or requests from Business Units. For example, a customer requests a change in collectibility data where 3 months earlier it should still be collectibility 1 (current), but in the system reported collectibility 2 (with special attention). For this matter, bank will make corrections to the SLIK data, but the bank is also

subject to a penalty of 3 months of accumulated delay. The correction of the reporting data in the previous reporting period was caused by a lack of awareness of the Business Unit on the importance of updating the SLIK reporting data. In addition, there are several things that can cause correction of reporting data:

- There are no clear rules regarding document reconciliation procedures
- Lack of socialization and training on the urgency of OJK SLIK reporting data that can increase employee awareness in the Business Unit
- Key Performance Indicators (KPI) for Business Units that focus on acquiring new customers and top up credit facility limits, there is a lack of focus on SLIK data quality.

e) Differences in SLIK reporting data with reporting to other regulators (LBU)

The difference in data reported in SLIK reporting with other reports such as Commercial Bank Reports (LBU) is due to differences in parameter criteria in the SLIK and LBU reporting systems. In the SLIK system, there are validation criteria, the system cannot read or report data with certain invalid criteria. Meanwhile, the LBU for invalid data can still be reported because there are no validation criteria in the SLIK system, so there can be differences in the data reported on the SLIK and LBU.

Based on the identification results, it can be concluded that there are several weaknesses in the identified internal information system, as follows:

Table 4 Identification of Weaknesses in the Internal Information System of Bank X

Identification of Internal Information System Weaknesses	Affected Data Quality
a. CIF data input does not match the physical document	Accurate
b. Data input in IPS is not fully integrated with the BDS system	Complete, Integrate
c. Changes to BDS data can be conducted by several work units	Integrate, Accurate, Current
d. Delay in SLIK reporting correction	Punctual
e. Differences in SLIK reporting data with reporting to other regulators (LBU)	Integrate

Source : Author

In accordance with the identification of internal information system weaknesses shown in Table 4, internal information system weaknesses can affect the dimensions of complete, accurate, current, complete and punctual data quality. The grouping of identification of internal information system weaknesses based on the affected quality dimensions is shown in Table 5.

Table 5 Percentage of Affected Data Quality

Dimensions of data quality affected	Amount of Issue	Percentage
Complete	1	13%
Accurate	2	25%
Current	1	13%

Intergrate	3	38%
Punctual	1	13%
Total	8	100%

Source : Author

Based on Table 5, the dimension of data quality that is most affected is the dimension of data integrity. So that Bank X can focus to improve the weaknesses of the internal information system that affect the integrity of the data. The weaknesses of the internal information system are: (1) Data input in IPS is not fully integrated with the BDS system, (2) changes to data in BDS can be made by several work units (Business Units, Credit Operation Units and Branch Offices), (3) Differences in SLIK reporting data with reporting from other regulators (LBU).

5.3. WEAKNESS ANALYSIS OF BANK INTERNAL INFORMATION SYSTEM

The root cause analysis of the internal information system is conducted based on the principles of the 2013 COSO framework which is limited to the weakness of internal control in Bank X's internal information system. The root cause analysis is shown in Table 6 as below:

Table 6 Analysis of Weaknesses in Internal Systems

Weaknesses of Internal Information System	Root Cause
a) CIF data input does not match the physical document	Weak reconciliation CIF data
b) Data input in IPS is not fully integrated with the BDS system	There is no reconciliation procedure between IPS data and BDS
c) Changes to BDS data can be conducted by several work units	Not clear authorization and segregation of duties for data updates in BDS
d) Delay in SLIK reporting correction	There is no procedure for reconciliation SLIK documents with updated credit documents
e) Differences in SLIK reporting data with reporting to other regulators (LBU)	There is no SLIK parameter reconciliation procedure with LBU

Source : Author

Based on Table 6, the following describes the root causes of the internal information system referring to the 2013 COSO internal control framework.

a) Weak reconciliation of CIF data

The problem with CIF data input due to weak reconciliation of CIF data input, especially for the 4 mandatory data (Name, Company Established Date, Type of Identity, and Identity Number). Currently, internal control has implemented verification by CIF data input officers at branch offices, namely by checking existing customer data on the system based on data that has been filled in by the customer in the account opening application form. If based on the results of the verification the customer already has CIF with the same data, then the

officer is required to use the existing CIF for the account opening process. In addition, the Bank X system is also designed automatically reconcile with existing data in the existing database. The reconciliation uses 4 mandatory data parameters (Name, Company Established Date, Identity Type, and Identity Number). However, if there is a difference between one of the mandatory data and the database in the system, the system will automatically form a new CIF.

b) There is no reconciliation procedure between IPS and BDS

The IPS system is the first system used by the Business Unit to create customer account. However, the data inputted to IPS is not fully integrated with BDS, so officers at Credit Operations, Business Units and Branch Offices still updating data directly through BDS. Currently the reconciliation of IPS and BDS data is not regulated in Bank X's internal procedures, it can cause differences in the data inputted in IPS with BDS.

c) Not clear authorization and segregation of duties for data updates in BDS

Each user of the BDS application owned by the work unit (Branch offices, Business Units and Credit Operations) has different access levels that determined by IT. Access level is the menu access authority in BDS including performing data update and approval functions. However, determining the access level still requires further study because there is still ambiguity and overlapping tasks, especially in SLIK data maintenance in BDS. The granting of access levels should be adjusted to the jobdesk of each work unit so that there is no overlap in updating data in BDS.

d) There is no procedure for reconciling SLIK documents with updated credit documents

Business Unit is a work unit that associated directly with customers and the first unit to know if there is a change in customer, for example, such as changes in collateral, management and shareholders, facilities and etc. But often the data on the system is not monitored properly. This is due to the absence of rules or procedures for reconciling debtor information in SLIK with the latest credit documents. As a result, complaints from Debtors often occur over the previous period's SLIK data and Bank X is required to correct the data errors, so that Bank X is subject a late penalty by OJK.

e) There is no procedure for reconciling SLIK reporting data parameters with

Based on information from Bank X, the difference in data reported to SLIK and LBU is caused by differences in the validation parameter criteria in SLIK so that data that is considered invalid in SLIK parameters will not automatically be reported to SLIK.

5.4. RESEARCH IMPLICATIONS

Improvement recommendation from root cause analysis, referring to the 2013 COSO internal control framework. Improvement recommendation are shown in Table 7.

Table 7 Improvement recommendation for internal system issue

Root Cause	Improvement Recommendation	Form of Control based on COSO 2013
Weak reconciliation CIF data	Reconciliation of NPWP data on the Directorate General of Taxes (DGT) database	Reconciliation
There is no reconciliation procedure between IPS data and BDS	Establishing reconciliation procedures between IPS data and BDS	Determination of Policies and Procedures
Not clear authorization and segregation of duties for data updates in BDS	Review authorization and approval in access level and BDS authority for Branch Offices, Business Units and Credit Operations	Authorization and approval
There is no procedure for reconciliation SLIK documents with updated credit documents	Determination of SLIK document verification procedures with credit documents in the Business Unit	Determination of Policies and Procedures
There is no SLIK parameter reconciliation procedure with LBU	Determination of procedures for data reconciliation of SLIK reporting with LBU	Determination of Policies and Procedures

Source : Author

The following are detailed explanation of the recommendations for transaction control in Table 9.

1. **Reconciliation of NPWP data on the database of the Directorate General of Taxes**

   The Taxpayer Identification Number (NPWP) is data that must be filled in when creating the Customer Identity File (CIF) for business entity customers. If there is a typing error in just one number, a CIF duplication will be formed even with the customer of the same business entity. On the NIK identity for individual customers, reconciliation of customer data with data from Dukcapil has been carried out based on the similarity of data on the Population Identification Number (NIK), Name, Place of Birth, Date of Birth, Mother's Birth Name and Place of Birth. The reconciliation method is formulated to obtain a comparison of data with an adequate level of similarity to be believed to be the same customer data. The data reconciliation was carried out by the EDM Group. For business entity customer data, it is possible to reconcile NPWP data with data from the Directorate General of Taxes (DGT). Therefore, Bank X should cooperate with DGT and implement reconciliation of business entity customer data to minimize the risk of error in

inputting mandatory CIF data (Name, Company Establishment Date, Identity Type, and Identity Number).

Determination of reconciliation procedure between IPS data and BDS

Reconciliation needs to be done between the data in IPS and BDS to understand the difference in parameters that causes the data between IPS and BDS that not integrated. Currently, there is no procedure that regulates the reconciliation of IPS data with BDS, so it is necessary to make a policy that regulates the reconciliation procedure. Reconciliation can also be done to find out the difference in parameters between IPS and BDS to be proposed as input for the IT unit in system development. Currently, Bank X has different IT systems in managing and developing IPS and BDS systems, so that with the establishment of these policies, it is expected to be able become a liaison between IT IPS and BDS.

2. **Review authorization and approval in access level and BDS authority for Branch Offices, Business Units and Credit Operations**
   Unclear authorization and approval at BDS level access, can impact in overlapping data updates in BDS. Employees at Branch Offices, Business Units and Credit Operations should conduct a study on the authorization to grant level access, especially for data entry inquiries in BDS which will be used for SLIK reporting so that there is no overlap in the data update process at BDS. Authorization review can be done by adjusting the existing access level with the job descriptions of BDS user employees. The review process requires the involvement of the BDS User Unit (in this case the Business Unit) with the Credit Trade Operations Unit as the coach of the user with the review procedure in accordance with Appendix 2 (User Review Process Flow and Periodic Access Rights). The results of the review are submitted to the Chief Information Security Officer (CISO) for approval.
3. **Determination of verification procedures for SLIK Debtor Information documents with credit documents in the Business Unit**
   The Business Unit can verify data periodically between the SLIK withdrawal document (Appendix 3) and the latest credit document in the Business Unit, so that not updated data can be immediately updated on the BDS system. The data verification procedure can work well if the customer account manager in the Business Unit is provided with adequate socialization regarding the provisions of SLIK reporting and internal information systems have a high awareness of the quality of SLIK data.
4. **Establishment of procedures for data reconciliation of SLIK reporting with LBU**
   COSO 2013 explains that reconciliation is comparing two or more data elements, and if there are differences, action is taken. Reconciliation needs to be done between SLIK and LBU reporting data to determine the difference in parameters. Reconciliation of SLIK and LBU reporting data parameters has been conducted by

the Internal Audit Work Unit during the audit period from January 21 to May 31, 2022. This can be used as a program that is routinely conduct, considering that dynamic changes in the SLIK system are accompanied by changes in future provisions. Therefore, it is necessary to establish a procedure for reconciling SLIK reporting data with LBU.

6. CONCLUSION AND RECOMMENDATION

1. Conclusion

The study concludes that the internal information system of Bank X, especially the one used for SLIK reporting, had several weaknesses. This weakness is caused by inadequate reconciliation and verification procedures between internal information sub-systems.

2. Recommendation

For these weakness, Bank X needs to conduct controls: 1) Cooperate with the Directorate General of Taxes (DGT) to be able to reconcile business entity Customer NPWP data, (2) Determine reconciliation procedures between IPS data and BDS, (3) Review the suitability of providing level access for Business Units and Credit Operations at the Head Office and Branch Offices, (4) Determination of procedures for verifying SLIK documents with credit documents in the Business Unit, (5) Determine regular reconciliation procedures for differences in data reported on SLIK and LBU and review the differences in parameters contained in the two reports.

According to the limitations of time and research costs, it is possible that there are still weaknesses in this study, as below:

1. This research does not involve all units involved in SLIK reporting, but it is limited to the internal control work unit.
2. The SOPs studied are limited to Operational Technical Instructions (PTO) in SLIK reporting, which are not applied to other PTOs such as CIF Creation PTO, Account Creation PTO, Data Maintenance PTO in IPS and BDS Systems, data reconciliation PTO and other PTOs to provide recommendations more specific.

For further research need to consider the following:

1. Involve resource persons from each SLIK reporting unit so that a more in-depth perspective on a problem in the internal information system.
2. Use technical procedures that are more specific to transactional activities in the internal information system involved in SLIK reporting so that recommendations can be made more specifically.
3. Consider the factors of providing incentives and granting broader authorization to Business Units in order to change the data in BDS and their impact on improving the quality of SLIK reporting data.

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REGULATION

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