

# Design of Continuous Auditing Application as a Tool to Increase Supervision of Operational Activities Institutions Social Security in Indonesia

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**Abstract**—The Internal Supervisory Unit (SPI) has broad responsibilities, namely overseeing the implementation of employment social security programs including the Institution's social security operational activities, both at the head office and regional office. Conventional audits conducted by SPI have limited resources, testing transactions based on sampling, and uneven work unit audits, so the audit coverage is still low and SPI does not yet have audit tools that can be used to conduct supervision in comprehensive and real-time. The development of continuous auditing applications is a good solution to overcoming these limitations. The research method used in UML. The process of making an information system design starts from making audit scenarios, flowcharts, activity diagrams and application interface prototypes. The results showed that applications of continuous audit can be developed by conducting population testing, real-time and generating continuous audit results automatically. So that this application can be a solution for SPI against obstacles encountered in conducting supervision of Institutions social security operational activities, but in developing this application, SPI needs to coordinate well with the Information Technology development unit, designate a person in charge to monitor and analyze the results of auditing continuous and development of other business process scenarios.

**Keywords**—Continuous Auditing, Audit, Supervision.

## I. INTRODUCTION

July 1, 2015, Company National Insurance officially perform the Full Operation, so that Insurance Company National was required to clean themselves in anticipation of there is an increase in many of membership and service. The greater the number of participants, the greater the workforce that must be served. The consequence of this is the higher risk faced by the National Insurance Company to carry out operational activities with an increase in many participation. Besides, the National Insurance Company as a public institution, it is demanded to be able to provide added value to the public /community, especially for workers (participants). On the other hand, the National Insurance Company is also required to use resources efficiently. This demand has an impact on demands for more efficient, effective performance to continuously improve the quality of service and to make a real contribution to improving the welfare of Indonesian workers. The purpose of the Internal Oversight Unit (SPI) is to carry out independent and objective assurance (audit) and consultation to improve the effectiveness of the risk management, control and governance process National Insurance Company, as well as providing recommendations for process improvement.

All operational transactions in business processes are carried out with the help of integrated information systems. The system is designed based on the Standard Operating Procedure (SOP) which also accommodates the necessary controls. So that the Internal Audit Unit has the opportunity to further analyze the transaction database that has been entered into the system. During this time there is a tendency after the audit process/ visit, the implementation of controls in the auditee will experience improvement. However, over time, the trend of control will decrease again and will increase again when the audit process is carried out in the next period. Fluctuations in this control trend will continue to occur so that the expected level of control is difficult to achieve and tends to "Walk in place". With more frequent and continuous "checks", any deviation of control and significant misuse will be immediately recognized by management so that it can be immediately returned to the appropriate control mechanism. This process will provide awareness to business process owners, that every transaction carried out will be monitored continuously.

This study aims to design and build a continuous auditing application information system and determine whether the continuous auditing application can be developed by the SPI to carry out its function as the oversight of the operations of the National Insurance Company.

Refer to The IIA's Global Technology Audit Guide (GTAG) document in the series "Continuous Auditing: Implications for Assurance, Monitoring, and Risk Assessment", continuous auditing is defined as the automatic method used for performance control and risk assessment on a more frequent basis. As the guide states, technology plays a key role in continuous audit activities by helping to automate the identification of exceptions or anomalies, analyze patterns within the digits of key numeric fields, review trends, and test controls, among other activities. While the results of CICA / AICPA research that CA is, "a methodology that enables independent auditors to provide written assurance on a subject matter using a series of auditors' reports issued simultaneously with, or a short period time after, the occurrence of events underlying the subject matter".

According to The IIA's Global Technology Audit Guide (GTAG) that in general, CA implementation consists of six procedural steps namely:

- 1) Establish priority / strategic areas / areas.
- 2) Identifying the monitoring limits and CA rules.
- 3) Determine the frequency of CA processes.

- 4) Configure the CA parameters.
- 5) Following up on CA Results.
- 6) Communicating the results.

According to O'Reilly (2006) the benefits of using continuous auditing are: Making the audit process faster, cheaper, more efficient and more effective, Shortening the audit cycle time to provide more timely risk and assurance of control, Achieve a large audit coverage without the need expanding resources, Conducting audits every day, monthly or quarterly, Conducting periodic audit tests automatically and increasing audit cycle time checks, Audits are conducted 100% of population data not only based on data samples, comparing and recalculating data in population, and Guaranteeing quality and speed in conducting assurance.

Onu and Ummukauka in the International Journal of Computer Applications Technology and Research (2016: 506), "UML is a standard modeling model for the real-world models in the field of software engineering. A UML diagram of a partial graphical view of the model of a system under design, implementation, or already in existence. UML diagrams are made up of graphical elements of the system model. The UML model of the system might also contain order documentation such as use cases are written as text. Meanwhile, according to Whitten & Bentley (2007: 371), UML is a modeling language used to determine or describe a software system based on the objects that exist in the system. UML does not specify which methods must be used in developing a system, but only specifies the standard notations that are commonly used for object modeling.

## II. METHOD

The steps in creating a Continuous Auditing (CA) application are as follows:

- a. Mapping business processes that will become scenarios in CA application development.
- b. Define exception condition criteria (anomalies), it will translate into programming languages for filtering and analyzing data.
- c. Classifying the level of risk for anomalous transactions. The level of risk category is high, medium high, medium low and low.
- d. Make a flow chart that illustrates the process of processing data from source data into a presentation layer display.
- e. Make a use case.
- f. Arranging Activity Diagram CA applications, it will used to explain the flow of activities both use cases and business processes.
- g. Make a prototype design of the CA application (interface)

## III. DISCUSSION

### A. National Insurance Company Business Process

Main process of business in Insurance Company National were carried out at the Branch Office and the Regional Office comprises two processes, namely marketing, and service while the first major business processes carried out at the Central Office that investigation. While business support processes consist of financial, general and human resources, information

technology and governance.



Figure 1. National Insurance Company Business Process.

The service business process includes handling services, managing statistical reports and managing each program, namely: the JKK Program (Work Accident Insurance), the JKM Program (Death Guarantee), the JHT Program (Old Age Insurance) and the JP (Pension Guarantee) program.

### B. Business Process of the Internal Audit Unit

SPI National Insurance Company is directly under the main directorate. SPI has the task of coordinating, planning, directing and controlling audit activities within the National Insurance Company to achieve an increase in added value in the achievement of the objectives of the National Insurance Company. One form of role SPI is assurance activities. In carrying out an audit activity, SPI forms an implementation team determined by the President Director with the team composition as follows: Responsible, Supervisor, Team Leader, and Team members.

The amount of coverage of the total object that is the responsibility of the audit organization becomes quite important to illustrate the overall control assessment. This is also the linkage of the National Insurance Company SPI which becomes the objective of the total audit coverage. Before 2018, the SPI function only conducted audits of Regional Offices and Branch Offices, while the Head Office and Pioneer Branch Offices had not been carried out due to the limited number of SPI personnel. But in 2018 the number of SPI personnel has increased so that the number of audit coverage has increased, although not yet 100%. The table below shows the audit coverage that has been conducted by SPI:

TABLE 1. Audit Coverage

Unit Kerja	2019	2018	2017	2016	2015
Direktorat	7	7	7	7	7
Depdir	26	26	26	24	23
Kamwil	11	11	11	11	11
Kacab	123	122	122	121	121
KCP	202	202	203	203	203
Total	362	361	362	359	358
Jumlah di audit	40	98	72	37	40
GAP Coverage	(322)	(263)	(290)	(322)	(318)
Coverage	11,05%	27,15%	19,89%	10,31%	11,17%
Personil SPI	74	71	65	34	26

### C. Scenario Development

The scenario development process includes defining objectives and risks (based on program audits), defining the

data needed, defining data processing procedures (anomalous criteria, data filtering processes), developing the presentation layer report design and creating a flowchart and defining the emergency level that will determine risk scoring every scenario and work unit.

**D. Proposed Diagram Design.**

**1 Use Case Continuous Auditing Application.**

Use case diagrams that will be proposed in the development of application continuous auditing consists of :

- a. 1 system that includes all continuous auditing activities that will be used by SPI.
- b. 4 Actors conducting activities, including Head of SPI, Assistant to the Head of SPI in STKPP Sector, Auditors and Administrators.
- c. 7 activity diagrams used include: displaying logins, Home, Dashboard, scenarios and user setups, continuous audit report and log out.

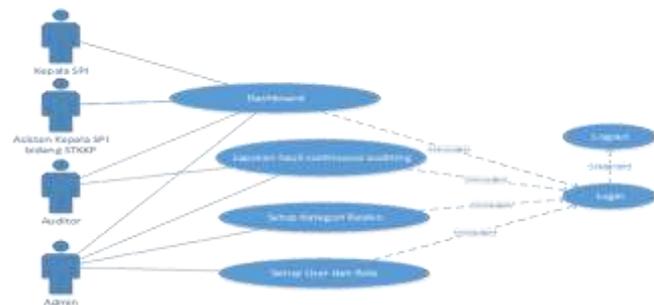


Figure 2. Use Case of Continuous Auditing Application.

**2. Activity Diagram Enter**

In the incoming activity diagram, there are 2 conditions namely normal entry conditions and abnormal entry conditions. The scenario of the incoming activity diagram is as follows: The user accesses the CA application and the system displays the CA login page. The user enters the name and password then click the login button, the system will display the dashboard menu page of the CA application. If the user enters an incorrect name and password, the system will display information that the username/ password is incorrect.

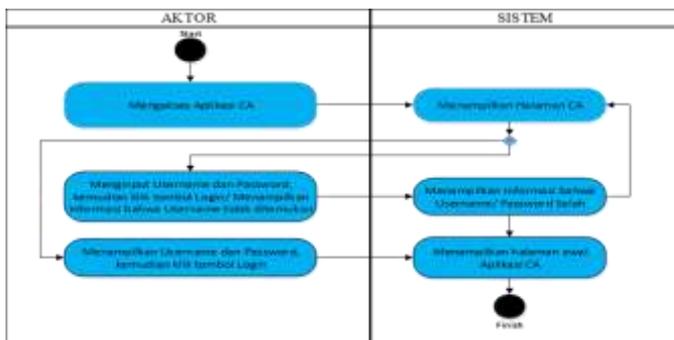


Figure 3. Activity Diagram Enter.

**3. Activity Diagram Dashboard**

The Scenario of the activity diagram dashboard as follows: Users access the CA application, the system will display the Anomaly Map menu page nationally. The user selects the

desired data list with certain criteria, the system will display data in full according to the selected criteria. The user selects the scenario ranking menu with the highest risk in the working area with the top 10 filters or displays all data, the system displays the scenario data ranking with the highest risk in the work area along with anomalous graphs according to the selected filter selection. Users sort data ascending and descending work unit rankings with the highest risk in the work area, the system will display work unit rank data with the highest risk in the work area by ascending and descending according to choice along with anomalous graphs. The user selects the data that he wants to download along with the details by ticking on the desired data, the system will download the data and the details according to the data chosen.

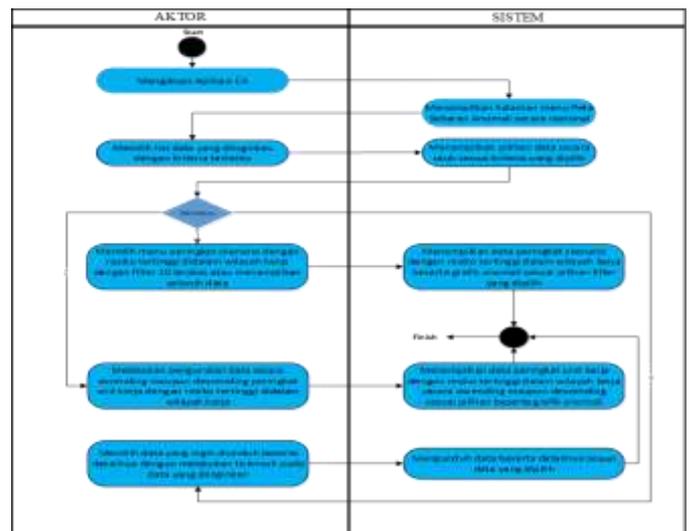


Figure 4. Activity Dashboard Diagram.

**4 Activity Risk Category Setup Diagram**

The activity diagram setup diagram for the risk category is as follows: The user accesses the CA application, the system displays the CA application menu page. The user selects the risk category Setup menu, the system displays the risk category input options according to the desired criteria. Users input criteria according to the desired risk category.

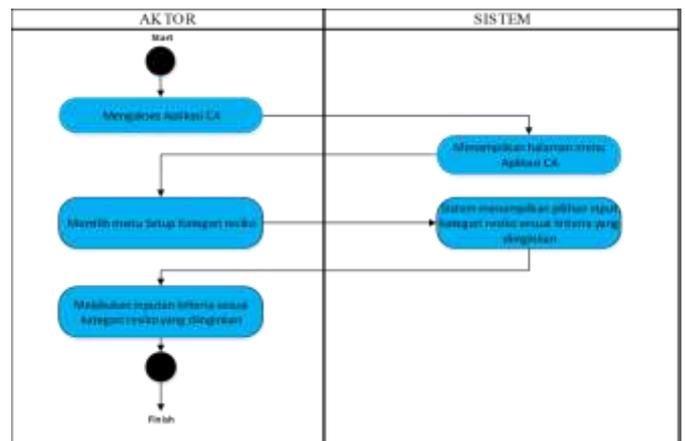


Figure 5. Activity Diagram of Risk Category Setup.

5 Activity Diagram of CA Results Report

Scenario activity diagram reports the results of CA as follows: User m are accessing Application CA, the system will Showing page menu Applications CA. The user selects the CA Reports report menu according to the desired month and time, the system will display data reports according to the desired data criteria. The user selects a checkmark to download data directly, the system will download the data directly to the download folder.

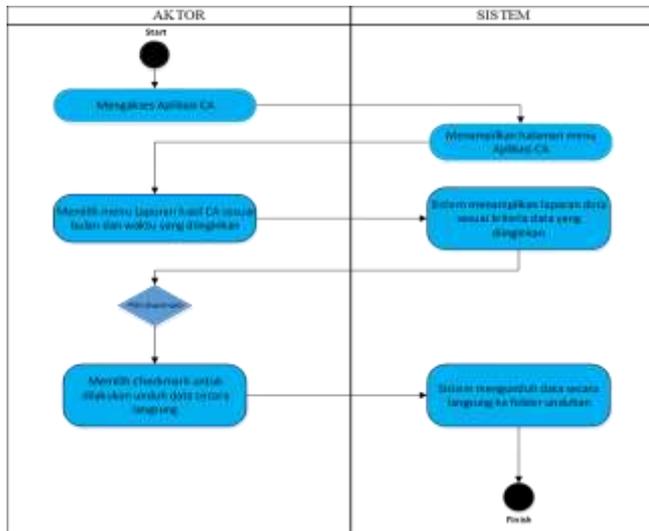


Figure 6. Activity Diagram of CA Report Results.

6. Activity Logout Diagram

The activity diagram of the logout diagram is as follows: The user clicks on the Logout button, then the user will exit the CA application and the system will display a login page.

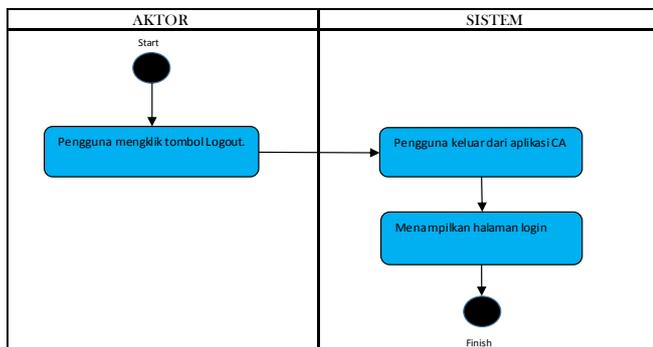


Figure 7. Activity Logout Diagram

E. Prototype Application Continuous Auditing

1. Login User Interface Prototype

To start the auditing continuous application, the User enters the continuous auditing application address with the Enter view. On the Enter interface, the User enters the User Name and password in the sections provided, then click Submit to Enter or click Reset to re-enter the User Name and password. There are 2 conditions may that may occur when Login is declared valid, namely:

- a. If the User has a role to access the continuous auditing

application, it will automatically be directed to the Dashboard page.

- b. However, if the user does not have a role to access continuous auditing, a popup will appear "You do not have a role to access, Please contact the Administrator", and automatically the User will return to the page Enter



Figure 8. Entrance Interface Design Prototype

2. Dashboard Scenario Prototype

The Home page is the main page after the User enters, which consists of the Home tab menu, Dashboard, Scenario, Setup, and Logout. Content principal at Home are Distribution Map anomaly, namely: Map of Indonesia consisting of spots throughout the Regional Office Company National Insurance throughout Indonesia, with each color that has the following meanings: green = Low Risk, Yellow = Medium Low Risk, orange = Medium High Risk and red = High Risk

The Dashboard page also consists of contents regarding:

- a. Rating of Scenarios with the Highest Risk in the Work Area, which contains the sequence of Scenarios that have the highest to lowest Risk value, which is obtained from the average risk value of all Work Units.
- b. Rank the Work Unit with the Highest Risk in the Work Area, which contains the Order of Regional Offices that have the highest to lowest Risk value, which is obtained from the average Risk Value of all Branch Offices in their ranks.
- c. Anomaly graph, which contains a graph of the level of comparison of the number of anomalies in each month.
- d. The home page allows the user to search for Work Units by selecting the units in question.



Figure 9. Prototype Design of home page content.

The ranking of scenarios with the highest risk in the work area will display information related to the type of scenario with the number of anomalies that occur along with the type of risk and risk category. Users can filter in ascending or descending and download results detail of such anomalies.

**PERINGKAT Skenario Dengan Risiko Tertinggi Didalam Wilayah Kerja**

No	Skenario	Jumlah Anomali	Kategori Risiko	Kategori Risiko	Download
1	REIT Kurang Bayar	15	Operasional	High	[Download]
2	Amalgamasi	10	Reputasi	Medium-High	[Download]
3	Lama Pembayaran Klaim REIT	10	Reputasi	Medium-High	[Download]
4	Pembayaran Rapot IP Restakab	2	Operasional	Low	[Download]
5	Lama Pembayaran Kalen IP	6	Reputasi	Low	[Download]
6	Pembayaran Klaim JK	6	Operasional	Low	[Download]
7	Lama Pembayaran Kalen REIT	10	Reputasi	Medium-High	[Download]
8	Pembayaran Samaran JK atas Kepentingan Raskadate	20	Operasional	High	[Download]
9	Lama Pembayaran Kalen RCM	5	Reputasi	Low	[Download]
10	Pembayaran Klaim JK	10	Operasional	Medium-High	[Download]

Figure 10. Prototype Design Scenario Ranking with the Highest Risk in the Work Area.

The ranking of work units with the highest risk in the work area will display information related to work units with the number of anomalies that occur along with risk categories. Users can filter in ascending or descending and download results detail of such anomalies.

**PERINGKAT UNIT KERJA DENGAN RISIKO Tertinggi Didalam Wilayah Kerja**

No	Unit Kerja	Jumlah Anomali	Kategori Risiko	Download
1	Kantor Wilayah DKI Jakarta	15	High	[Download]
2	Kantor Wilayah Banten	10	Medium-High	[Download]
3	Kantor Wilayah Jawa Barat	10	Medium-High	[Download]
4	Kantor Wilayah Jawa Timur	2	Low	[Download]
5	Kantor Wilayah Jateng dan DIY	6	Low	[Download]
6	Kantor Wilayah Sumbagut	6	Low	[Download]
7	Kantor Wilayah Sumbagwel	10	Medium-High	[Download]
8	Kantor Wilayah Sambarran	20	High	[Download]
9	Kantor Wilayah Kalimantan	5	Low	[Download]
10	Kantor Wilayah Sulam	5	Low	[Download]
11	Kantor Wilayah Bantospa	10	Medium-High	[Download]

Figure 11. Prototype Design of Work Unit Ranking with the Highest Risk in the Work Area.

The anomaly graph displays a graph of the level of comparison of the number of anomalies based on risk categories each month in the Regional Office. Users can download the results to find out work units with risk categories.

3. Prototype User Setup Interface

The User Setup Module is a module that can only be accessed by Administrator users; This module is used by administrators to setup Users and their accessible roles. User ID will be integrated with the main application in the National Insurance Company so that the administrator can search User ID. There are 2 options in the User setup, namely:

- a. If a user is found, a list of available roles and the roles they have will appear.
- b. If the User is not found, a notification " User not found" will appear

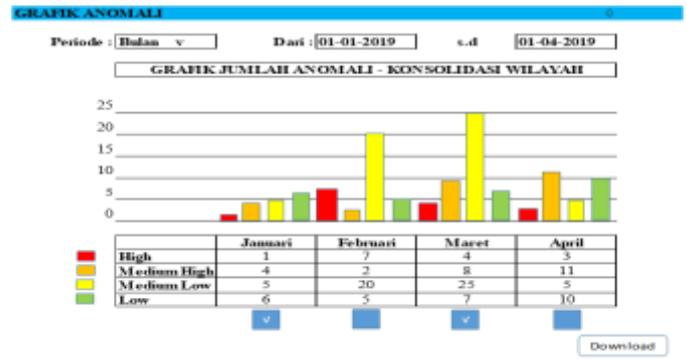


Figure 12. Prototype of Anomaly Graphic Design.

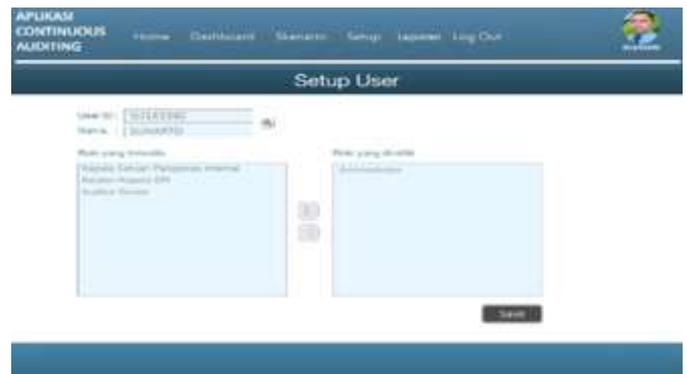


Figure 13. A Prototype of User Interface Setup Design.

The characteristics of the user are as follows: The auditor has the task to print the audit report and access the dashboard so that access rights to the application consist of access rights to print all audit reports, access rights to the dashboard form and access scenarios. The SPI Assistant Head has the task of accessing the dashboard so that he has full rights to access the dashboard form.

The Head of SPI has the task of accessing the dashboard so that he has full rights to access the dashboard form. Administrators Set roles and access the dashboard so they have access to setting roles to personnel and dashboard access.

IV. CONCLUSION

Based on the discussion above, the author can provide a conclusion: SPI National Insurance Company does not yet have an automatic audit tool to supervise work units in a population, real-time and fast. The process of making a continuous auditing application information system starts from identifying business processes that have a high risk as a top priority, preparing audit procedures to achieve audit objectives that are set as scenarios that will be a reference in system design , making flow charts that will illustrate the flow of the system and output produced , compilation of activity diagrams accompanied by explanations, making prototype application interfaces and continuous auditing results reports as a means of communication to the auditee. The continuous auditing application can be used to supervise work units in a population and real-time manner, to increase audit coverage, be more cost-efficient because SPI does not conduct audits on the spot and supervision is more effective. A continuous auditing

application can be made and developed by SPI Manpower to supervise the operations of the National Insurance Company. Organizations can provide opportunities for employees to participate in training, seminars, and other activities regarding fraud prevention.

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