STMIK Primakara Academic Data Audit Based on DAF (Data Audit Framework)

Ananta Wijaya[1], Adisimakrisna Peling [2], Ida Bagus Alit Swamardi[3]
[1][2] Department of Electrical and Computer Engineering, Post Graduate Program, Udayana University.
Email: kherias@gmail.com
[3]Department of Electrical and Computer Engineering, Udayana University

Abstract—This time the development of a large amount of data occurs in various sectors, one of them is the education sector. Although addition of data occurs every day, college does not yet have a formal strategy to perform collection, observation, and maintenance of the data. This condition is experienced by STMIK Primakara. The audit framework is required to mapping the existing data in higher education. Joint Information Systems Committee (JISC) develop Data Audit Framework that contains the stages of structured work to audit the academic data. The implementation of DAF on the academic data STMIK Primakara produce SWOT analysis which represent data asset condition.

Key Words—Audit, Data Audit Framework, Academic Data

I. INTRODUCTION

Today Universities are required to have a competitive advantage by using the resources they have. Beside the human resources, facility and infrastructure, information resources can also be used to improve competitiveness against other university. The role that is owned by the information system is getting, data processing, which will later be displayed in the form of information. Other than that the information system is also able to provide accurate information in decision-making activities.

STMIK (Sekolah Tinggi Manajemen Informatika dan Komputer) Primakara is a private university located in Renon, Denpasar. In its vision STMIK Primakara will work develops themselves into the extraordinary universities become reference in national tehnopreneurship field in 2020. As we can see, the students are not only given knowledge IT only, but also business knowledge. Carry their tagline tehnopreneurship STMIK Primakara educating students not only powerful and become IT specialists global was but also can be creative as entrepreneurs who can create new jobs. This University can be classified as the new university for new standing at 2012.

The lack of experience in managing academic data cause this universities are rated under the board of the university located in Indonesia. Based on data from the Ministry of Research and Technology of Higher Education of the Republic of Indonesia 2015, STMIK Primakara located on the stages of the 1920 from 3320 universities Further data revealed [1].

The mapping of academic data is the first step that must be done to be able to good manage the data. By doing the mapping of data will be known: (1) The classification of academic data, (2) Description of the academic data (3) Academic data storage location, (4) Overall responsibility for a data, (5) Business process of academic data, and (6) History of academic data. The results of this mapping is then used for academic data analysis process.

The Data Audit Framework (DAF) facilitates an organization to identify, location, explains, and assess data from the organization [2]. DAF is a method to make it easier to survey the auditor get the information. DAF help in planning a strategy to ensure that the audit process went smoothly [3]. DAF was created in a project is chaired by HATII (Humanities Advanced Technology and Information Institute from the University of Glasgow). Standard implementation DAF will facilitate the process of academic data mapping STMIK Primakara. Besides using DAF, audited data will be more easily accessible because we know the data history more clearly.

II. LITERATURE REVIEW

A. Data Audit Framework

The University has data in a number of many, often this data is managed without a certain strategy. The situation that often occurs is the lack of attention to the content of a data or how a managed data [4]. The JISC (Joint Information Systems Committee)-funded Data Audit Framework (DAF) has been developed in response to these issues. If institutions are to be in a position to manage and share their data, they must first establish an overview of holdings and the policies and practices in place to manage them.

Auditing data can bring several benefits for an organization. They could be categorized into efficiency savings, risk management, and enabling access and reuse [5]. Realizing all of these benefits relies on knowledge of data holdings. Being aware of what is held and by whom can identify duplication of effort and enable prioritization of resources. Knowing how data are being curated, and whether controls are in place, will point to areas of potential risk. Similarly, an understanding of data agreements is crucial to facilitate access and promote reuse. Thus, knowledge of holdings is the cornerstone of effective data management. The Data Audit Framework is a first step in this process, assisting organizations to

(p-issn: 2579-5988, e-issn: 2579-597X)
collect such information so they can develop policies and processes appropriate to their needs.

The DAF methodology was conceived by Sarah Jones, Raivo Ruusalepp and Seamus Ross from HATII at the University of Glasgow [4]. It was designed to be applied without dedicated or specialist staff. Subject-specific expertise is helpful but is not viewed as essential. An understanding of data issues and curation practices takes precedence. It has been designed so that it can be applied without dedicated or specialist staff and with limited investment of time or effort. The methodology has four stages:

1. Planning the audit
2. Identifying and classifying data assets;
3. Assessing the management of data assets; and,
4. Reporting results and making recommendations.

The stages generate two key outputs: an inventory of data assets created during Stage 2; and a final report that incorporates recommendations on how data management could be improved. A detailed workflow of tasks and outputs within each of these stages can be seen overleaf (see Figure 1).

**FIGURE 1 Stages in the DAF methodology, 2008 HATII, University of Glasgow**

1. Planning the audit

   There are two key objectives of the planning stage:
   (1) to secure organizational buy-in by establishing a robust DRAMBORA: Digital Repository Audit Method Based on Risk Assessment is available at: business case; and,
   (2) to prepare as much as possible in advance of the audit so time spent on-site can be optimized. Securing agreement from top management and ensuring this commitment is filtered down is crucial. Establishing expected outcomes will assist data auditors with determining the scope and focus of the audit. By conducting background research the auditor can minimize demands placed on data creators, managers and users, and scheduling interview times and locations in advance will help ensure they are ready to contribute. Planning of the audit involves the following tasks:
   - Set up the audit.

2. Identifying and classifying data assets

   The purpose of the second stage is to establish what data assets exist and classify them according to their value to the organization. Essentially, an inventory of data assets is compiled through a mapping exercise. The overall quality of the entire audit depends on this first knowledge-gathering exercise. Classification schemas are suggested in the inventory but will need to be tailored to the particular organizational context. The classification step will determine the scope of further audit activities, as only the vital or significant assets will be assessed in greater detail. This stage should proceed through the following steps:
   - Analyze documentary sources;
   - Conduct questionnaire and/or interviews;
   - Prepare data asset inventory; and,
   - Approve and finalize asset classification.

3. Assessing the management of data assets

   The aim of this stage is to collect additional information about the data assets central to the work of the organization. Assessing the management of these assets enables auditors assess whether the current level of resources provided is sufficient. Information collected should help identify weaknesses in data management practices and point to occasions when data are being placed at risk. During this stage, several forms are completed which assist auditors in asset and context profiling (Audit Form 3A or 3B). The methodology provides two elements sets to support the collection of information at different levels of detail. The level of detail adopted will be determined by the audit aims and scope set at the planning stage.

4. Reporting results and making recommendations

   In the final stage the auditor draws together the results of the data audit to produce a final report. This report will include recommended actions to improve data management. Suggestions of relevant services and tools that could be used by the organization to enhance their practices and services are provided in the audit toolkit and as new ones emerge we will hope to link these to the toolkit. We recommend that it would be best practice to submit the audit report to the appropriate managers within the organization for comments before it is finalized.

**III. RELATED RESEARCHES**

A. The Data Audit Framework: a toolkit to identify research assets and improve data management in research led institutions

Although vast quantities of data are being created within higher education, few institutions have formal strategies in place for curating these research outputs in the long-term. Moreover, there appears to be a lack of awareness as to exactly what data are held and whether they are being managed. In response to these concerns the
Joint Information Systems Committee (JISC) issued a call for proposals to develop and implement a Data Audit Framework suited to the needs of the UK higher education research communities. The Data Audit Framework (DAF) Development project was funded to produce an audit methodology, online toolkit, and a registry. Four additional implementation projects were funded to test the toolkit and promote its uptake. This paper outlines the audit methodology, introduces the online toolkit, and provides feedback on implementing the Data Audit Framework [3].

B. Experimenting With The Trial Of A Research Data Audit: Some Preliminary Findings About Data Types, Access To Data And Factors For Long Term Preservation

Developing systems and services for the effective and efficient management of research data as well as addressing issues around their long-term curation is an area of increasing activity in UK Higher Education. This paper discusses some preliminary results from a questionnaire survey, conducted as part of the trial implementation of the Data Audit Framework Methodology at University College London (UCL). Fifty-seven (57) academic and research staff from 5 designated departments and an interdisciplinary research center provided information about the nature of their research and the types of primary research data they produce. The survey explored factors that could impact on access, use and preservation of such data. The preliminary results indicate that researchers recognize the potential usefulness of such data for other researchers as well as their long-term value. Retaining primary research data after the end of the funding period and re-using them for initiating further research are practices already acknowledged. However, ownership, copyright and restrictions on access to research data can be hazy areas for academic and research staff and require further investigation, advice and support. The value of primary research data appears to be closely linked to the context within the data which were generated [6].

C. Scoping Digital Repository Services For Research Data Management

The project Scoping Digital Repository Services for Research Data Management started in January 2008 as across-agency collaborative effort in Oxford. The project aimed to scope the requirements for digital repository services to manage and curate research data generated by Oxford researchers. The project contributed to the HEFCE funded UK Research Data Service feasibility study. As part of the requirements gathering exercise around 40 interviews with researchers took place and a consultation with service units in Oxford was conducted. The interviews with researchers helped us to learn more about their data practices and to capture their top requirements for services to support their data management. The consultation with service providers used the data management and curation services framework, to understand what services are available and identify gaps in the service provision. The results of this consultation showed how expertise is widespread amongst service units in Oxford but on the whole, the vast majority of the research data management and curation services identified are not being offered fully or at all by service units across the University [7].

IV. DISCUSSION

A. Planning the Audit

In stage of collection information about the data audited, the auditor using two methods, that is: interview and questionnaire method. The data will be audited is a student academic data which consist of: (1) Student Data (2) Absent Data, (3) KRS Data, (4) Lecture Schedule Data, and (5) Point TAK Data. In the first stage of the auditor make Interview schedule and the spread of questionnaire to the authorities in managing academic data. Now the authority who asked for the information is as follows:

- Academic department is the authority who manage student data, KRS data, and lecture schedule data;
- The front office is the authority who manages absent data and lecture schedule data;
- Student department is the authority who manages point TAK data;
- PPTI is part authorities to back up and keep all the digital data that is in STMIK Primakara.

The next step is to fill the audit sheet 1 to know the complete profile from the audited organization. Audit sheet 1 can be seen in figure 2.

B. Identifying and Classifying Data Assets

In second stage, information about the audited data will be identified and classified according to the category of asset data DAF [5]. Audit data will be classified into three categories: vital, important, and minor. The explanation of each category can be seen in figure 3.

(p-issn: 2579-5988, e-issn: 2579-597X)
From the results of collected data asset data we obtained categorization as in figure 4.

**FIGURE 4 Form Audit 2**

C. Assessing the Management of Data Assets

The third stage of the audit process is to gather more information about vital data asset and important data assets. Based on the information in this stage, the auditor can embrace re-classification of asset data. After determining the appropriate category, the next step is to create a list of data issues the asset. The issue faced by the management of asset data, how they manage data or actions that are performed when there is a threat or risk to the experienced.

The first step in this stage is to fill the form 3 for each data asset that has been classified. Charging the information in this stage, the auditor interviewed the party who manages data assets. This is done with the purpose to make an expert not was puzzled as to when filling the form questionnaire. In addition, other purpose is so that the information obtained more closely.

The first Form 3 is about the student data management with an expert is academic department. From this data collection process obtained the information that the student data will be experiencing the addition of many when the new school year. This is due to such as in figure 5.

**FIGURE 5 Form Audit 3A Students Data**

The second of Form 3 contains the detail information about KRS data. This data is managed by the academic department and updated each semester. Then every once a week this data is backed up by PPTI. The results of the data collection data KRS can be seen in figure 7.

**FIGURE 7 Form Audit 3A KRS Data**

Figure 8 explains the detail information about the lecture schedule data. This data is managed and updated each day by the front office. The same as other asset data this data is backed up every week by PPTI. The fifth Form 3 is about the point TAK data. This point is used by the students as one of the conditions of graduation. This data is managed by the student department.
D. Assessing The Management of Data Assets

From the references that we read [2][5], no maternity level or point of the assessment used to draw the conclusion. Therefore, we decided to use a SWOT analysis to describe the situation in STMIK Primakara academic data. At this stage of the audit team to analyze the data obtained using SWOT analysis. SWOT analysis is a strategic planning method used to evaluate the strength, weakness, opportunities, and threat in a project or a speculation business. SWOT table can you see on figure 10.

![SWOT Table](image)

V. CONCLUSION AND SUGGESTIONS

From the results of audits that have been done, STMIK Primakara must immediately make business case in accordance to the asset data. With bussiness case STMIK Primakara will be able to manage, control and monitor the existing asset data. Besides that, with bussiness case we will be able to analyze the feasibility, operational cost benefits and risks of each asset data.

REFERENCE