Analysis of Information Quality at Klabat University’s Academic Information System

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Abstract: Academic Information System of Klabat University (SIAU) is an information system used in Klabat University to record academic information but the information quality of SIAU has not been measured. Goal of this research is to measure and to know what variable has affected the information quality of SIAU. In measuring, researchers used six variables from Cobit 5 as independent variables and quality as dependent variable. The six independent variables are: Effectiveness, Efficiency, Confidentiality, Availability, Compliance, Reliability as in. Sample of this research is students in each faculty and is done by distributing questionnaires. Researchers used SPSS version 24 to perform calculations. As result, Effectiveness doesn’t influence SIAU while the other variables influence SIAU because they have Significance smaller than 0.05. But, simultaneously of all independent variables have influenced dependent variable about 34.6%. In conclusion, simultaneously the quality of information produced by SIAU doesn’t have good quality, therefore the quality of information SIAU need to be improved and developed.

Keywords: Analysis, System, Cobit, Information Quality, Information System

Introduction

The development of information systems is experiencing rapid growth. Many human activities in office, supermarket, airport, school, and even in home are using computer-based information system (CBIS). Whether realized or not, CBIS has helped a lot of people (Kadir, 2014). Information systems have an important role to provide the information needed to achieve the goals of an organization (Jean-Paul Van Belle, 2003). Good CBIS can provide good data and information. Improvement of information quality had provided by CBIS can increase customer satisfaction (McLean, 1992). The number of approaches used to measure the quality of information generated by the CBIS in providing quality information for user is: COBIT Framework, CALDEA dan EVAMECAL, Total Quality Management (TQM).

Higher education is an education organization which main activity of higher education is education provider (Marlindawati, 2014). In carrying out good academic activities, information technology is needed to provide convenience and speed to improve service quality to student. If users of information systems believe that the quality of information generated from a system is good, then users will feel satisfied in using the information system. Therefore, the measurement of the quality of data generated by the information system is needed to determine the level of user satisfaction.

Klabat University (Unklab) is a university that has used CBIS for operational activities and decision making. In order to facilitate the operational and decision making process, Unklab uses CBIS, including Academic Information System of Unklab (SIAU). To know the quality of information and data produced by information system at Klabat University is good, especially in academic field; the researcher will measure the quality of information by analyzing the data and information produced by SIAU.

Problem Statement

Based on the background, the formulation of the problem is made as follows:

1. Is there a significant relationship between effectiveness (X1) and SIAU (Y)?
2. Is there a significant relationship between efficiency (X2) with SIAU (Y)?
3. Is there a significant relationship between confidentiality (X3) and SIAU (Y)?
4. Is there a significant relationship between availability (X4) and SIAU (Y)?
5. Is there a significant relationship between compliance (X5) and SIAU (Y)?
6. Is there a significant relationship between reliability (X6) and SIAU (Y)?
7. Is the effectiveness (X1), efficiency (X2), confidentiality (X3), availability (X4), compliance (X5), reliability (X6) have simultaneous relationship with SIAU (Y)?

**Conceptual Framework**

Based on the problem formulation, conceptual framework in this research is made as follows:

![Conceptual Framework Diagram]

Figure 1 shows the dependent variable (Y) has relationship with six sub-variables of independent variables (X). Y is SIAU and X is information quality. Six sub-variables of X are: Effectiveness (X1), Efficiency (X2), Confidentiality (X3), Availability (X4), Compliance (X5), and Reliability (X6). This research was conducted to analyze the quality of information generated by SIAU.

**Scope and Limitation**

Scopes of research are:
1. This research was conducted to measure the quality of information in SIAU.
2. This research is only done on the students.
3. This research is only conducted on students in all faculties who take the S-1 program.
4. Data collection is done only for students of Level II, III, and IV.

Limitations of research are:
1. Freshman are excluded from research population
2. Research is not conducted for students taking S-2 and Profession Ners courses.
3. This research is not conducted on lecturers & staff.
4. The results of this research represent the quality of information in SIAU in period of 2016-2017.
Hypothesis

Hypothesis is a temporary answer to a problem that is still presumptive because it must be proved (Virdiansyah, 2008). In the research type of hypothesis used there are three types, namely (Lolang, 2014):

- Alternatif Hypothesis (Ha), states the relationship between variables X and Y.
- Hypothesis Zero (Ho), states there is no difference between variables X and Y. The null hypothesis is the hypothesis to be tested, usually a statement that indicates that a population gauge has a certain value.
- Work Hypothesis (H1) is the same statement with the same population measurement as used in the null hypothesis. Generally, this hypothesis states that the population gauge has a different value than the statement already mentioned in the null hypothesis.

Based on the formulation of the problem in pointed out, the hypothesis in this study are:

- Ha1: Effectiveness significantly influence the quality of information SIAU.
- Ha2: Efficiency significantly influence the quality of information SIAU.
- Ha3: Confidentiality has a significant effect on the quality of SIAU information.
- Ha4: Availability significantly affects the quality of SIAU information.
- Ha5: Compliance has a significant effect on the quality of SIAU information.
- Ha6: Reliability has a significant effect on the quality of SIAU information.
- Ha7: Information quality, effectiveness, efficiency, confidentiality, availability, compliance, reliability simultaneously have a significant effect on the quality of SIAU information.

Literature Review

Information System

Information system is a tool set that connected each other, collect/retrieve, processing, store, and distribute information to support decision making in an organization (Laudon & Laudon, 2012). On the other hand, Sutono (2007) said information system is computer based system that provide information to user. Users are usually incorporated into a formal organizational entity, such as a Department or Institution of a Government Institution that can be translated into Directorate, Field, Section down to the smallest unit below. The information system contains important information about people, places, and everything that exists within or around the organization. Implementation of information systems within an organization is intended to provide information needed, especially by users from various levels of management. Management of an organization functions effectively if decision makers are supported by a quality information system (Utomo & Mariana, 2011). Quality can be defined in many ways ranging from "satisfying customer needs", "eligibility to use", "suitability for needs". It is clear that the definition of quality encompasses the customer and satisfies who is the goal of the business (Chandra, 2001). Quality information according to Al Hakim (2007) is easily accessible, accurate, the information is sufficient, complete, the information is suitable to the needs, consistent, easy to understand, relevant, safe, error free and timely.

In an organization's information system requires consistent quality of information in order to meet the requirements and expectations of all those who need such information to conduct business processes. This concept is associated with the concept of information products that use data as input and information defined as data that has been processed so as to give meaning to the recipient of information English (1999). Quality information can meet business objectives, if they meet certain criteria, COBIT describes the characteristics of quality information into seven main aspects, namely (Utomo & Mariana, 2011):
Effectiveness, the resulting information must be relevant and able to meet the needs of every business process related and available in a timely, accurate, consistent, and easily accessible manner. Effectiveness is also a condition or circumstance, where in choosing the goals to be achieved and the means or equipment used, accompanied the desired goal can be obtained with satisfactory results (Rahardjom, 2011).

Efficiency, where information can be obtained and provided in an economical way, especially related to the consumption of allocated resources. In economics, Efficiency is the maximization and utilization of all resources in the process of producing goods and services (Sullivan & Sheffrin, 2003).

Confidentiality, concerning the protection or security of sensitive and confidential information from parties who have no right to know. According to ISO (2005), Confidentiality is one of the aspects possessed in information security by means Confidentiality is a preventive measure from unauthorized persons or parties to prevent information (ISO, 2005).

Availability, in relation to information must be available when required with the expected performance time and capability. Information security ensures that users can access information at any time without any interruption and not in unacceptable formats, whether human users, or computers that have the right to access information, Availability ensures users have access to information (ISO, 2005).

Compliance, the information held must be able to be accountable for its truth and refers to applicable laws and regulations, including following national or international standards. Compliance means complying with standards, procedures or laws regulated by the competent authority in a particular field.

Reliability, where the information produced must come from a reliable source so as not to mislead the decision makers who use the information. Reliability related to the provision of appropriate information (IT Governance Institute, 2000).

**Sistem Informasi Universitas Klabat (SIU)**

Unklab has seven faculties and one postgraduate namely Faculty of Economics, Faculty of Philosophy, Faculty of Teacher Training and Education, Faculty of Agriculture, Faculty of Computer Science and Faculty of Nursing, and Postgraduate. Currently Klabat University has a computer-based information system that helps the control of operational activities to be implemented properly and efficiently, namely the Information System of Klabat University (SIU). Here is a picture of SIU (figure 2).

![Figure 2 UNKLAB information system's structure](image)
Klabat University’s Academic Information System (SIAU)

Academic information system is a system that presents information and organize the administration associated with academic activities. Where the services provided are: data storage for new students, class determination, course schedule, teaching schedule, lecturer division, and assessment process (Rukmiyati & Budiartha, 2016). Information technology plays an important role in universities, especially in terms of academic activities for data processing. More and more academic data are processed demanding that this activity be done quickly, accurately and well-generated information. Academic information system is the most widely used solution for managing academic data. In addition to simplify the process of data management, information systems can also reduce operational costs to be incurred.

The use of academic information system can be used as a favorable means for students, starting from new admissions, student academic data management, lecturing activities implementation, resource management and executive decision making process which can be done effectively and optimally using information system.

![Academic information system's structure](image)

Based on figure 3, the composition of SIAU consists as follow:
1. Registration provides services for contracting courses to be taken.
2. Semester Cost Estimation provides information on the estimated tuition fee for the semester followed.
3. Add / Drop Registrative Subject provides services for courses to be canceled and courses to be added.
4. Drop Subject provides services to drop the course.
5. View Grade can be seen from By Semester or By Curriculum to see the results of course grades.
6. View Schedule provides course schedule information in the semester that followed.
7. Teacher Evaluation, contains a questionnaire to evaluate the performance of the lecturer / lecturer being taken.
8. View Ospek & KKN / KKU is information about the students have passed Ospek & KKN / KKU.
9. View Absence contains information on the number of student absences during the course.
10. Profile provides information on personal data of students.
11. Balance is a tuition fee payment transaction information.
12. My Labor provides information about the student who work at campus.
13. Verification is information about the truth of reports and statements against students.
14. My Document provides information on the completeness of the student files required by the university.
15. My Non-Academic Record, providing non-academic record information.
16. Rules and Decisions provide information about the rules and decisions of the university.

Analysis of Information quality of information system

Information quality used as a measuring tool to measure user satisfaction. Quality is the level by which the characteristics that give value to the user. The measure of user satisfaction in information systems is reflected by the quality of information generated by a system. If users of information systems believe that the quality of information generated from an information system is good, then users feel satisfied in using the information system (Purwanto, 2010). Therefore, the measurement of the quality of information is required, to determine the level of user satisfaction system. The higher the level of trust in information, the more likely it is that a person gets the system useful. Increased user information, is expected to further improve the quality of the information system itself.

EVAMECAL and CALDEA

CALDEA (CALidad DE Almanacenes de datos) is not a process, it is a Maturity Management Model. Based on the CMMI (Capability Maturity Model Integration) model that provides the characteristics of an effective process of quality information and data management. CALDEA states there are 5 levels of development of information quality management for Information Management Software Process (IMP) (Nasution, 2005)). These five levels are described as follows:
1. Initial Level. Initial level if there is no effort to achieve the goal of quality information.
2. Definition Level. All components and their relationships within the organization are defined and planned.
3. Integration Level. IMP is guaranteed to meet the needs, standards and virtues of information quality within an organization.
4. Quantitive Management Level. The primary objective at this stage is the achievement of automatic quantitative conformity in which the work of the IMP is consistent with the variation and stability of the measurement in a given period.
5. Optimizing Level. IMP is at this level if the result reached is used for further improvement by eliminating errors or by making improvements.

EVAMECAL Method: Assessment and Repair Methodology

EVAMECAL is an assessment and improvement methodology that aims to improve the quality of data and information. EVAMECAL consists of steps to measure the quality of data and information, ie (Nasution, 2005):
1. EVAMECAL-PLAN (EMC-P). Assessment of current state of data and quality of IMP information. The main purpose of this step is to determine the current condition of the IMP within the scope of the maturity level of information quality (based on CALDEA).
2. EVAMECAL-DO (EMC-D). Analysis of the potential causes and development of the improvement plan. The main purpose of this step is to determine the reason why an IMP is not working as it should.
3. **EVAMECAL-CHECK (EMC-C).** Check the efficiency of the improvement plan. In order to empirically validate a successful plan, there must be a series of tests conducted. The goal is efficiency and validata data. Examination is a process after a prepared plan is realized or executed over a period of time.

4. **EVAMECAL- ACT (EMC-A).** Obtain conclusions by considering problems and initial conditions to avoid future problems and solving similar problems.

**Total Quality Management (TQM)**

Total quality management (TQM) is a management approach to achieve long-term success through customer satisfaction. TQM is an approach in running a business that tries to maximize the competitiveness of an organization through continuous improvement of its products, services, people, processes and environment (Tjiptono & Diana, 2002). TQM's main objective is to orient the management system, staff behavior, organizational focus and service delivery processes so that service providers can produce better, effective services can meet customer needs, wants and needs.

TQM can be achieved by taking into account its characteristics: customer focus, high quality obsession, scientific approach to decision making and problem solving, long-term commitment, teamwork, unity of purpose, education and training and engagement and employee empowerment (ITGI, 2012). The guiding principles of TQM include: the promotion of a quality-focused environment, the introduction of customer satisfaction as a key indicator of quality service and system change, behavior and processes for goods and services provided by an organization.

**COBIT (Control Objective for Information and Related Technology)**

In conclusion about measurement method, TQM is a customer-focused quality management system that engages all levels of employees in continuous improvement or improvement, while the EVAMECAL and CALDEA methods are a measurement standard that focuses on the assessment and improvement of a system. Based on these conclusions, the researchers chose COBIT Framework as a measure with reason, the researchers wanted to measure the quality of data and information based on the user's point of view.

The COBIT Framework provides a comprehensive framework for helping companies achieve the goal of creating optimal value of information technology by maintaining a balance between realizing benefits and optimizing the level of risk and resource use (Landau & Everitt, 2004). The COBIT Framework Standard is issued by the IT Governance Institute which is part of ISACA. The latest version is COBIT 5. The main goal of COBIT Framework is to provide clear policy and good practice for IT Governance in companies worldwide to help senior management understand and manage the risks associated with information technology. The COBIT Framework does so by providing an IT Governance framework and detailed objective control guidelines for management, business process owners, users and auditors.

The concept of the COBIT Framework framework is the determination of control in information technology based on information needed to support business objectives and information resulting from the combined application of information technology processes and related resources. COBIT Framework has five main principles for corporate governance and management of information technology companies: 1). Meeting stakeholder needs, 2). Covering the enterprise end-to-end, 3). Applying a single, integrated framework, 4). Enabling a holistic approach, 5). Separating governance from management. The management of an organization functions effectively when decision makers are always supported by the existence of quality information. COBIT describes the characteristics of quality information into six main aspects of effectiveness, efficiency, availability, compliance, and reliability (Laudon & Laudon, 2012).
Related Research

In the related research section discusses previous research that has been done by other researchers related to this research, this is done to know the advantages and disadvantages that have been done.

In the research of GOVERNANCE TECHNOLOGY GOVERNANCE ANALYSIS ON ACADEMIC FIELD WITH COBIT FRAMEWORK CASE STUDY ON STIKUBANK SEMARANG UNIVERSITY conducted by Agus Prasetyo Utomo and Novita Mariana stated that in the implementation of academic service it is necessary that the use of information technology can support the speed, convenience and convenience in academic services, so the quality of academic services can be provided to students (Utomo & Mariana, 2011).

In the study of COMPARISON OF ACADEMIC INFORMATION SYSTEM UNIVERSITY SATYA WACANA USING COBIT FRAMEWORK conducted by Evi Maria stated that the information system is an asset for a company that if managed properly will give advantages to compete while increasing the possibility for the success of a business. In order to be managed then the information system must be controlled because the control provides adequate guarantee for the management that the information system has been running in accordance with the planning and goals of the organization. The concept of COBIT framework is designed as an IT mastery tool that assists in understanding and managing IT-related risks, benefits and evaluations (Maria, 2011).

In the research PERFORMANCE MEASUREMENT OF ACADEMIC INFORMATION SYSTEM USING COBIT 4.1 FRAMEWORK ON DOMAIN PLAN AND ORGANISE at SINGAPERBANGSA KARAWANG UNIVERSITY conducted by Ade Andri Hendriadi, M. Jajuli and Kunn Siwi T stated that a good academic information system is expected to support the management of education process such as early entry selection for new students, teaching and learning process, lecture support components such as methods used, curriculum and other provisions, until graduation students need to be evaluated in order to produce quality and good and competitive education services (Hendriadi, Jajuli, & Kun, 2012).

Methodology

Research methodology plays an important role in the effort to collect the necessary data in research. The research method provides guidance in the implementation of research. In this section will be presented several matters concerning research methodology include location, population, research sample, research design, research methods, data collection instruments, data collection procedures, and validation and reliability testing.

Location, Population, and Sample

Location is very important in research. The locations in this study were University of Klabat, Airmadidi, North Minahasa. The population is not the entire population of a given geographic area, but is the arrangement that the respondents have set in the geographical area. The population in this study were students of Klabat University who used SIAU. The sample is part of the population that the investigator intentionally selected to observe, so the sample size is smaller than the population and serves as the representative of the population. The purpose of sampling is to obtain representative data or data that can be representative in relation to the target population (Nargundkar, 2008).

Research Design

In this section the researcher uses a research model based on the relationship between the variables to be studied hence, the form of paradigm or research model in this research is double pradigma (Sugiyono, 2014).
Figure 4 Research design

Figure 4 shows that variable X is Data Quality, while variable Y is Academic Information System of University of Klabat. The sub-variable X is: effectiveness, efficiency, confidentiality, availability, compliance, reliability.

Research Method

The method in this research is descriptive method with quantitative approach. Descriptive method is a research method used to describe problems that occur in the present or ongoing, aiming to describe what happened as it should be when the research is done. While the notion of quantitative approach is the approach done by recording and analyzing the data of research results exactly by using statistical calculations. Quantitative approach is an effort to measure the variables that exist in the study (variables X and variable Y) to then sought relationship between these variables. Quantitative approach emphasizes the existence of variables as the object of research and the variables must be defined in the form of operationalization of each variable.

Instrument

In this research, the data used is the primary data obtained through questionnaires. Primary data is data obtained directly from respondents. This study uses questionnaires as an instrument of data collection. Questionnaire is a primary data collection tool with survey method to obtain respondent opinion. There are two types of questionnaires namely, questionnaires with questions that are open and closed. Open-ended questions allow respondents to answer freely and widely to questions. While the questionnaire question is closed, respondents are only given the opportunity to choose the answer that has been available. Closed questions will reduce the variability of the responses of respondents making it easier to analyze (Pujihastuti, 2010). In this study, researchers chose a questionnaire that is closed to be used as an instrument of data collection.

The questionnaire used in this study consists of two parts, the first part contains questions about the profile of the respondents. The second section contains questions about effectiveness, efficiency, confidentiality, availability, compliance, reliability to know the quality of data and information from SIAU. The number of questions from the questionnaire in this study are 21 questions that can represent each variable. Questions in the questionnaire can be seen in Table 1 of the Questionnaire Development Matrix.
Table 1 Questioner development matrix

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pertanyaan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness (X1)</td>
<td>X11 Data Informasi yang dihasilkan SIAU tepat waktu</td>
</tr>
<tr>
<td></td>
<td>X12 Data Informasi yang dihasilkan SIAU memenuhi kebutuhan yang diperlukan</td>
</tr>
<tr>
<td></td>
<td>X13 Data Informasi yang dihasilkan SIAU mudah dimengerti</td>
</tr>
<tr>
<td>Efficiency (X2)</td>
<td>X21 Data Informasi yang dihasilkan dapat diakses melalui semua gadget</td>
</tr>
<tr>
<td></td>
<td>X22 Ada fasilitas gratis untuk mengakses SIAU</td>
</tr>
<tr>
<td></td>
<td>X23 SIAU dapat diakses dengan cepat</td>
</tr>
<tr>
<td>Confidentiality (X3)</td>
<td>X31 Adanya perlindungan terhadap data informasi yang dihasilkan oleh SIAU</td>
</tr>
<tr>
<td></td>
<td>X32 Data Informasi yang dihasilkan oleh SIAU bersifat rahasia</td>
</tr>
<tr>
<td></td>
<td>X33 Proses keamanan dalam mengakses SIAU memberikan saya kepercayaan yang tinggi</td>
</tr>
<tr>
<td>Availability (X4)</td>
<td>X41 Ketersediaan data informasi yang dihasilkan SIAU sudah memadai</td>
</tr>
<tr>
<td></td>
<td>X42 Kegunaan hasil data informasi sesuai dengan yang diinginkan</td>
</tr>
<tr>
<td></td>
<td>X43 SIAU memudahkan sebanyak data informasi akademik anda</td>
</tr>
<tr>
<td>Compliance (X5)</td>
<td>X51 Penerapan SIAU dilengkapi petunjuk pengunaan</td>
</tr>
<tr>
<td></td>
<td>X52 Data Informasi yang dihasilkan dapat dipertanggung jawabkan kebenarannya</td>
</tr>
<tr>
<td></td>
<td>X53 Adanya hubungan terhadap oknum yang melaksanakan kuncuran data</td>
</tr>
<tr>
<td>Reliability (X6)</td>
<td>X61 Data Informasi yang dihasilkan berasal dari sumber yang dapat dipercaya</td>
</tr>
<tr>
<td></td>
<td>X62 Data Informasi yang dihasilkan dapat membantu anda mengambil keputusan dalam bidang akademik</td>
</tr>
<tr>
<td></td>
<td>X63 Data Informasi yang dihasilkan selalu up to data</td>
</tr>
<tr>
<td>SIAU (Y)</td>
<td>Y1 Portal Mahasiswa User friendly</td>
</tr>
<tr>
<td></td>
<td>Y2 Desain Interface nyaman untuk user</td>
</tr>
<tr>
<td></td>
<td>Y3 Secara keseluruhan anda puas dengan SIAU</td>
</tr>
</tbody>
</table>

Table 1 shows a list of questions representing all sub variables X and Y. From each sub variable X and Y are given 3 questions.

Data Collection Procedure

This research used data collection procedures by distributing questionnaires. The questionnaire was given directly to some of SIAU’s user. Questionnaires were distributed to the students at the chapel event of each faculty and the number of questionnaires to be distributed in accordance with the number of samples that had been calculated and determined was 1296. Scale used in all indicators as well as on each variable is Likert scale starting from: 1 (Strongly Disagree), 2 (Disagree), 3 (Neutral), 4 (Agree), 5 (Strongly Agree).

Testing

Validation and reliability tests run in schools or colleges that also have academic information systems that have been computerized. Researchers chose Sam Ratulangi University to perform validation testing and reliability of the questionnaire. Validity is the accuracy or precision of an instrument in measuring what it wants to measure. Validity is related to the appropriateness between concepts and the indicators used to measure them. So, it can be concluded that the validation test is done to measure the instruments used in this study that is a feasible questionnaire to be able to mengukut quality data and information generated by SIAU.

Validity test is done based on r table having significance criteria 0.05. If r is calculated < r table then the question is invalid, otherwise if result r is calculated ≥ r table then question stated valid (Ghozali, 2005). The summary of the validity test results as the data in the following table.
Based on the information Table 2 states that 21 questions submitted are all declared valid. The reliability test is performed to establish the questionnaire has been used more than once by the same respondent. The results of test reliability performed can be seen in the following table.

Table 2 Validation

<table>
<thead>
<tr>
<th>Variabel</th>
<th>r value</th>
<th>table % (100)</th>
<th>Desc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>x1-1</td>
<td>0.319</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x1-2</td>
<td>0.467</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x1-3</td>
<td>0.213</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x2-1</td>
<td>0.203</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x2-2</td>
<td>0.596</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x2-3</td>
<td>0.568</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x3-1</td>
<td>0.212</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x3-2</td>
<td>0.268</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x3-3</td>
<td>0.570</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x4-1</td>
<td>0.674</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x4-2</td>
<td>0.703</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x4-3</td>
<td>0.707</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x5-1</td>
<td>0.651</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x5-2</td>
<td>0.639</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x5-3</td>
<td>0.247</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x6-1</td>
<td>0.677</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x6-2</td>
<td>0.732</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>x6-3</td>
<td>0.772</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>y1</td>
<td>0.605</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>y2</td>
<td>0.648</td>
<td>0.195</td>
<td>Valid</td>
</tr>
<tr>
<td>y3</td>
<td>0.688</td>
<td>0.195</td>
<td>Valid</td>
</tr>
</tbody>
</table>

Table 3 shows N of Items is a question in the questionnaire, so the questionnaire used has 21 questions. Cronbach's Alpha is the value of the resulting reliability, according to Prayitno (2013) that the criterion of the resulting reliability value <0.6 then the value of its reliability is poor, then if the resulting value is 0.6 - 0.7 then the value of reliability is acceptable, while the resulting value of reliability is> 0.8 then the value reability is good. The reliability value of the questionnaire in this study was 881. Thus, it can be concluded that the reliability of the questionnaire is good.

<table>
<thead>
<tr>
<th>Reliability Statistics</th>
<th>Cronbach's Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.881</td>
<td>21</td>
</tr>
</tbody>
</table>

Data Analysis and Statistic

Regression Analysis is an analysis used to explain the relationship between independent variables (independent) to dependent variables (dependent). Simple Linear Regression is based on the
relationship of one independent variable X with one dependent variable Y. While Multiple Linear Regression is a regression involving the relationship between one dependent variable Y with two or more independent variables X. Multiple regression analysis is actually the same as a simple linear regression analysis, only independent variables more than one [(Ni, Komang, & I Gusti, 2013).

The general equations of simple linear regression are:
\[ Y = a + bX \]

Desc.: 
Y = Subject in the predicted dependent variable. 
a = Price Y when X = 0 (constant price) 
b = Figures or regression coefficients, which indicate the increase or decrease in the dependent variable based on the independent variable. If b (+) then rises, and if (-) then there is a decrease. 
X = Subject to independent variable having certain value. 

The general equation of multiple regression is: 
- Regression equation for two predictors:
\[ Y = a + b_1X_1 + b_2X_2 \]
- The regression equation for three predictors is:
\[ Y = a + b_1X_1 + b_2X_2 + b_3X_3 \]
- The regression equation for n predictors is:
\[ Y = a + b_1X_1 + b_2X_2 + \ldots + b_nX_n \]

Simple regression and multiple regression analysis were used to test the hypotheses in this study. 
- Ha1: Effectiveness has a significant effect on the quality of information 
- Ha2: Efficiency significantly influence the quality of information 
- Ha3: Confidentiality significantly affects the quality of information 
- Ha4: Availability has significant effect on the quality of information 
- Ha5: Compliance significantly affects the quality of information 
- Ha6: Reliability has a significant effect on the quality of information 
- Ha7: Information quality, effectiveness, efficiency, confidentiality, availability, compliance, simultaneously have a significant effect on the quality of SIAU information.

In this study, researchers used SPSS statistical software to perform data processing and regression calculations.

Result

Respondents

In this section describes the condition of respondents in the form of simple information about the circumstances of the respondents used as objects in the study, with grouping respondents by level, faculty, gender as well residence.
Analysis with Multiple Regression

Multiple regression analysis is intended to test the influence of two or more independent variables on one dependent variable (Iqbal, 2008), i.e., by simultaneously testing all dependent variables: Effectiveness, Efficiency, Confidentiality, Availability, Compliance, Reliability of Academic Information System of Klabat University. Here are the results of analysis using statistical applications SPSS 24.

Based on the test results in table 7 shows that the six independent variables X1 (Effectiveness), X2 (Efficiency), X3 (Confidentiality), X4 (Availability), X5 (Compliance), and X6 (Reliability) simultaneously affect the dependent variable namely SIAU expressed by the value of adjusted r² of 0.346 or 34.6%. In other words, the effect of X1 (Effectiveness), X2 (Efficiency), X3 (Confidentiality), X4 (Availability), X5 (Compliance), and X6 (Reliability) simultaneously to Y is 34.6% while the remaining 65.4% is determined by other factors outside the assigned variable not examined in this study.
According to Sugiarto (2009), the value of r² is always positive, because it is the ratio of the two sums of squares (whose value is always positive). There are several criteria that can be used as a guideline that is if the value of r² 0 then the relationship criterion that is No correlation, if the value of r² 0-0.5 then the correlation criteria is weak correlation, if r² value 0.5-0.8 then the correlation criterion is medium correlation, if value r² 0.8-1 then the relationship criterion is strong correlation and if the value of r² 1 then the criteria of the relationship is perfect correlation.

### Table 8 Multiple regression result (2)

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>201.302</td>
<td>6</td>
<td>33.55</td>
<td>115.091</td>
<td>0.00</td>
</tr>
<tr>
<td>Residual</td>
<td>.375</td>
<td>12</td>
<td>0.2</td>
<td>0.291</td>
<td>0b</td>
</tr>
<tr>
<td>Total</td>
<td>577.059</td>
<td>12</td>
<td>95</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significantly simultaneous test results from table 8 using SPSS version 24, showed that the significant value of 0.00 <α 0.05 then Ho7 rejected. So, the conclusions can be seen from the test that is six variables: Effectiveness, Efficiency, Confidentiality, Availability, Compliance, Reliability, simultaneously have a significant influence on SIAU.

### Table 9 Multiple regression result (3)

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>St. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>0.613</td>
<td>0.124</td>
<td>4.947</td>
<td>0.0</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>0.061</td>
<td>0.027</td>
<td>2.262</td>
<td>0.024</td>
</tr>
<tr>
<td>Efficiency</td>
<td>0.099</td>
<td>0.024</td>
<td>4.113</td>
<td>0.000</td>
</tr>
<tr>
<td>Confidentiality</td>
<td>0.082</td>
<td>0.025</td>
<td>3.262</td>
<td>0.001</td>
</tr>
<tr>
<td>Availability</td>
<td>0.184</td>
<td>0.028</td>
<td>6.518</td>
<td>0.00</td>
</tr>
<tr>
<td>Compliance</td>
<td>0.112</td>
<td>0.029</td>
<td>3.863</td>
<td>0.00</td>
</tr>
<tr>
<td>Reliability</td>
<td>0.292</td>
<td>0.029</td>
<td>9.12</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Table 9 shows that the variable X1 (Effectiveness) has a Sig value. = 0.024, the value is greater than the maximum significant value that is, 0.05. Therefore, the variable X1 is not significant to SIAU. While the value of the variable X2 (Efficiency) which has a value of Sig. = 0.000, X3 (Confidentiality) = 0.001, X4 (Availability) = 0.000, X5 (Compliance) = 0.000, and X6 (Reliability) = 0.000. Based on the value possessed by X2, X3, X4, X5, and X6 then the result gives the
conclusion that significantly have influence to SIAU. To conclude, we get the regression equation
model obtained with the coefficient of constants and coefficient of variables that exist in
Unstandardized Coefisient B table which shaped as follows: \( Y = 0.613 + 0.108 + 0.085 + 0.182 +
0.107 + 0.274 \).

**Conclusion**

Based on the results of analysis and data processing in this study, the researchers make
conclusions about the analysis of the quality of information expressed as independent variables X1
(Effectiveness), X2 (Efficiency), X3 (Confidentiality), X4 (Availability), X5 (Compliance), and X6
(Reliability) to the dependent variable Y (SIAU) as follows:

1. Ho1 rejected and accept Ha1 stating that there is no correlation between variable X1
   (Effectiveness) with SIAU, because it has significant value \( \alpha 0.05 \) that is equal to 0.024.
2. Ho2 rejected and accept Ha2 which states that the relationship between variables X2
   (Efficiency) with SIAU, because it has a significant value \( <\alpha 0.05 \) is 0.000.
3. Ho3 rejected and accept Ha3 which states that the relationship between variables X3
   (Confidentiality) with SIAU, because it has a significant value \( <\alpha 0.05 \) that is equal to 0.001.
4. Ho4 rejected and accept Ha4 which states that the relationship between variables X4
   (Availability) with SIAU, because it has a significant value \( <\alpha 0.05 \) which is 0.000.
5. Ho5 rejected and accept Ha5 which states that the relationship between variables X5
   (Compliance) with SIAU, because it has a significant value \( <\alpha 0.05 \) is 0.000.
6. Ho6 rejected and accept Ha6 which states that the relationship between variables X6
   (Reliability) with SIAU, because it has a significant value \( <\alpha 0.05 \) is 0.000.
7. Simultaneously the quality of information generated by SIAU has a quality of 34.6%. Thus,
   Ho7 is rejected and accepts Ha7. But it has a low coefficient of determination, this is caused by
   the variation of research data.

**Recommendation**

Based on the conclusions about the quality of information analysis on academic information
system of Klaboat University, the researcher gives suggestions that can be input as follows:

**Suggestions for Klaboat University**

1. Based on the results of research indicates a significant influence of the variable quality of
   information to SIAU. Based on these results, it is expected to the University of Klaboat in
   order to maintain and improve the quality of the resulting information to be more qualified.
2. Basically, the quality of information generated by SIAU is good. But sometimes it is still less
   timely, so it would be better if the information presented in the system has been available
   when needed.
3. For the system designer will be better if opening the service in case of complaints felt by
   users of the information system.

**Suggestions for Further Research**

1. Can be done similar research, with the scale of population and the specified sample, in order
   to better describe the influence between quality information with SIAU, because this study
   only valid for one year.
2. Can be done further research that takes into account the factors other than Effectiveness,
   Efficiency, Confidentiality, Availability, Compliance, and Reliability that have a role in
   influencing the quality of information generated by SIAU.
3. Examine whether there are intermediary variables that affect so that the variable X1 has a
   value that is not significant.
Reference


ITGI. (2012). *COBIT 5*. USA: ISACA.

