Integrated System for Evaluation of Implementation of Internal Quality Audits and ISO 9001; 2015 Case Study: Universitas Pembangunan Nasional "Veteran" Jawa Timur

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Abstract:

The Internal Quality Assurance System (SPMI) is a system to ensure quality in the process of providing education. All components in the process of providing education support the achievement of aspects of SPMI. An important role in SPMI is the scope of the study program (Prodi), faculties, Institute for Learning Development and Quality Assurance (LP3M), and reviewers. Study program/faculty as SPMI document compiler. LP3M acts as system manager and decision maker at SPMI. Reviewers as assessors who assess the results of the SPMI study program documents. In SPMI activities, study programs / faculties fill out the required form files. Then the reviewer can evaluate the completed file with a score from 1 to 4. However, the evaluation process which is also called Internal Quality Audit (AMI) is still manual. This makes it less easy for LP3M managers to monitor evaluation values and make decisions. From the description above, this proposal proposes a system that can perform an integrated evaluation of AMI online. Not only focusing on AMI, SITEPAMIS can also conduct evaluations to meet ISO 9000;2015. ISO 9000;2015 is a standard for quality management. This research is divided into two years. In the first year, the creation of a web technology-based system with evaluation features of AMI and ISO 9000;2015 values until the implementation process. The output of this stage is a SITEPAMIS web application, reputable national journals, national seminars, and copyrights. In the second year, the mobile version of SITEPAMIS was started. The output of this stage is a SITEPAMIS mobile application, international journals, international seminars, and textbooks, so that at the end of the research results in an Integrated System Application for Evaluation of Internal Quality Audit Implementation and an ISO version of SITEPAMIS which is purely Web-based.

Keywords: Audit, ISO 9000;2015, Sytem Evalution

1. Introduction

Ease of access to information is currently an obligation in service. This is made possible by the development of increasingly advanced information technology. Information technology can support the service process to be more effective and efficient. Utilization of information technology is not only in business, private sector, health, but also in the field of education [1].

Utilization of information technology in the field of education can facilitate the academic community in carrying out activities [2] Teaching and learning process activities, research, community service, support, and management of organizational management really need information technology [3]. One process that requires information technology support is the Internal Quality Assurance System (SPMI) process which is the domain of the Learning Development and Quality Assurance Institute (LP3M).

LP3M National Development University "Veteran" East Java is an institution that carries out its duties as implementers, coordinators, monitors, and evaluators of learning development activities and quality assurance. In quality assurance activities there is SPMI which is carried out by study programs / faculties. SPMI has standards that have been set by the Regulation of the National Accreditation Board for Higher Education (PerBAN-PT) number 2 of 2019. PerBAN-PT regulates the Self Evaluation Report (LED) and Study Program Performance Reports (LKPS) to support the study program accreditation process (Accreditation, 2019) [4]. There are nine criteria that must be considered during the accreditation process.

In the process, LED and LKPS were prepared by the East Java Veterans UPN study program/faculty. Preparation of LED and LKPS based on data that has been collected in accordance with predetermined criteria. After the LED and LKPS documents are formed, the documents are collected to the manager, namely LP3M UPN Veteran Jatim. LP3M is assisted by auditors in evaluating the results of the LED and LKPS documents. The highest score that can be given by the reviewer is four and the lowest is one. Reviewers can provide information when assessing. After the reviewer finishes assessing a document, the reviewer must print the assessment document to be submitted to LP3M.

The obstacle in the entire Internal Quality Audit process at UPN Veteran Jatim is that the process is still manual. As a result, LP3M has difficulty in monitoring the assessment results from reviewers. The application of SITEPAMIS can facilitate the integration of study program value data so that LP3M can view, compare, and make decisions regarding the results obtained. SITEPAMIS can perform document assessments, and see the graphs of each study program that can be integrated. In the first year of research, it is expected that the output will be in the form of Research Reports, Accredited National Journals, Proceedings of the Research Month seminars and Copyright.

2. Related Works

Previous research on SPMI has been widely carried out. Previous research is the subject of study and comparison in the preparation of the research concept to be developed. One of the studies that became a reference in this study was [5] which carried out the implementation of SPMI at the Sambas State Polytechnic using the Standard Operating Procedure method. From this research, it was found that the cooperation between university environmental components is an important part, SPMI evaluation, and SPMI evaluation results can encourage decision makers to improve the ability of implementers at universities both in terms of human resources and recommendations for the allocation of the required financial.

The next research, namely made an Internal Quality Audit Information System at Sultan Syarif Kasim State Islamic University Riau [6] The system can assist the internal quality audit process, so that it can be facilitated and the process becomes effective for both implementers and assessors. The development of the system can be implemented at UIN Sultan Syarif Kasim Riau.

The design of the Internal Quality Audit Information System Based on Study Program Accreditation Instruments (IAPS 4.0) was carried out by [7]. The method used in this research is Unified

Modeling Language (UML). The output of this research is a conceptual framework to support the Internal Quality Audit process at Universal University.

There is research on the Design of Quality Assurance Information Systems Using the Throwaway Prototyping Development Method [8]. Making throw-away prototyping by formulating design requirements in advance so as to avoid risks if the requirements have not been planned. The implementation of this quality assurance information system can run well and can facilitate the process of accessing information in the implementation of SPMI.

The roadmap for this research can be seen in the fish-bone diagram. This research is an Internal Quality Audit Assessment System with a Web-Based Scoring Method. In the future, this system can be developed using mobile technology and various methods.

In technology-based research starting from Web Technology-Based Information Systems and supported by research on Organizational Memory Information Systems at SPMI, AMI Assessment System with Web-Based Scoring Methods, SPMI Design for Higher Education in HR, Information System Design for Internal Quality Assurance Agency of STMIK Balikpapan Based on Responsive Websites , Design and Implementation of Web-based Internal Academic Quality Audit Information System using Framework, and Implementation of GraphQL and NuJX on AMI Smart System at UPN Veterans East Java. The next stage is a Mobile-Based Information System, supporting research, namely Mobile-Based Information Systems on AMI and ISO [9] Evaluations at UPN Veterans East Java, Design and Build an IPAS 4.0-based AMI Information System, PS Accreditation Information Systems at the Faculty of Computer Science and Information Technology, Mulawarman University, Designing SPMI College Software that Has the Power of Adaptation to Changes in User Needs Quickly and Often. The final target of this research roadmap is the establishment of SITEPAMIS.

Integrated System An integrated system can support a company or organization in its activities so that it is able to operate activities and manage data automatically [10]. Data management with an integrated system produces accurate and precise data. With an integrated system, the distribution of information becomes easier so that activities can be controlled and the top level of the organization can make decisions. Integration of a system is done by combining similar sub-systems [11]. So that data management on the system can guarantee the accuracy and accuracy of the data. An integrated system is able to accommodate the needs of a data and information.Internal Quality Audit SPMI refers to PerBAN-PT number 2 of 2019 [12]. The preparation of SPMI documents, namely LED and LKPS, is carried out by the Study Program / Faculty. The implementation of SPMI in tertiary institutions is the determination, implementation, evaluation, control, and improvement of higher education standards (Directorate of Quality Assurance, Director General Belmawa, 2014). The criteria set out in the SPMI standard are: Availability of Work Competency Standards.

3. Experiment and Analysis

The research methodology used in this study is the survey results from the Head of Quality Assurance of LP3M UPN Veterans East Java and previous research literature studies. From these two activities, the idea of a state of the art concept was obtained in this study, namely the Online

Integrated System for Evaluation of Internal Quality Audits at UPN Veterans East Java. The next step is system analysis and then system design. In the system design process, namely carrying out case study descriptions, analysis of Quality Assurance System business processes, system architecture, use case diagrams, activity diagrams, sequence diagrams, class diagrams, and making system input outputs (views).

The roadmap in the first year is the development of a web-based SITEPAMIS. Then the first stage of SITEPAMIS trial with implementation on AMI and ISO at LP3M UPN Veterans East Java. In the second year, the creation of a mobile-based SITEPAMIS was carried out. Furthermore, the second stage of the SITEPAMIS trial was carried out. The final activity is the implementation of SITEPAMIS and documentation of the use of SITEPAMIS.
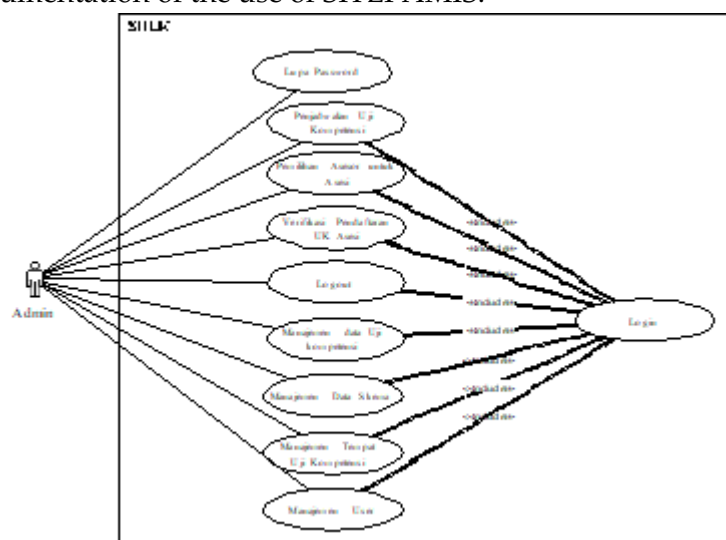
Figure 1. *Use Case Diagram* Admin

Use Case diagram is a diagram that describes the functional model of each user by using actors and use cases. In the system analysis described previously there are 3 actors involved, namely Asesi, Assessor and Admin, as shown in the picture 2.

Use of SITEPAMIS Application

SITEPAMIS Login Page, Figure 2 Is a login page of a sitepamis with various levels contained in the system. On this page there are several login sections, including:

1. Login for Reviewers, serves to enter users with reviewer level and conduct assessments.
2. Login for the Study Program, serves to enter the user with the level of the study program and enter the data questionnaire.
3. Login for Administrator, serves to enter data input in password format.
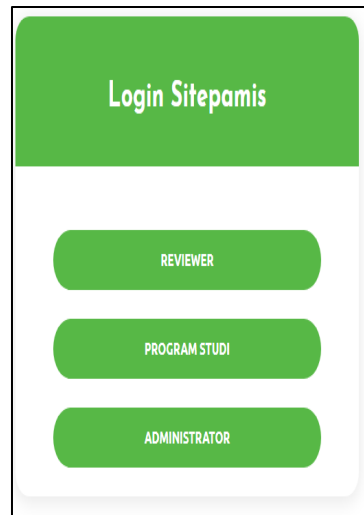
Figure 1 SITEPAMIS Login

The Login page of SITEPAMIS, the user will select the level that the system has created for the next process. If the user has selected one of these levels, it will be redirected to the level page
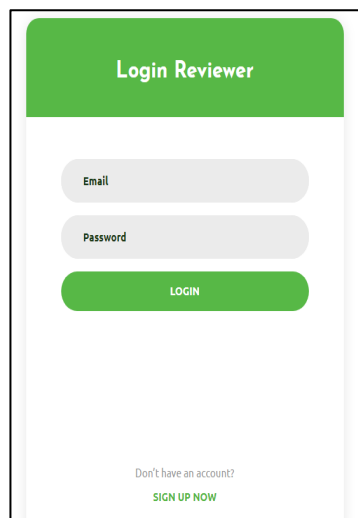
Figure 32 Login level Reviewer
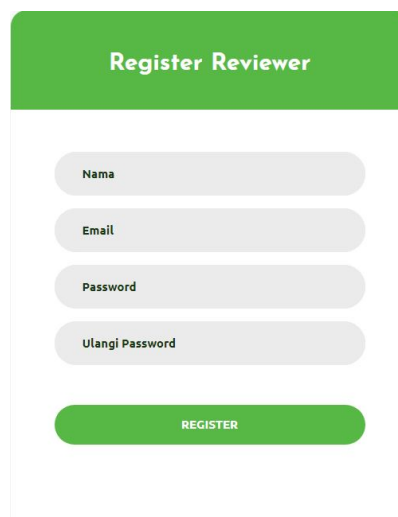
Figure3. Register page view

After the registration process is complete, the user will get an account activation link   sent to the email that has been registered. Then the user will be redirected to the account activation page.

Account Activation page

This page serves to activate accounts that have received activation links   from the system,Figure 3.6. Before the account is activated the user cannot log into the system. On this page there are several sections, including:

1. ActivationLink, to send an account activation form.

Figure4 Account Activation page view

After the user receives   the notification in the email,   then the user   will   verify the account so that it   can be   active   to make an   assessment.

Home Page

After the reviewer   successfully   registers andlogins, then   the reviewer   will be directed to the main page on this Application, in this application there are various menus in it,   Figure 5 Here is the menu on the home page:

1. On the home page at the top of the navbar of the application there is a Home menu, the Profile menu will go to the Home page of this Application.
2. There is an account name of reviewers   who have logged in on the system service   menu.
3. There is a start button, in the menu   field of the system   service will direct the   reviewer to start filling the   form.
4. Logoutmenu, will direct   reviewers   outwards   using   this application.

Figure 5. Home page view

In   this home   view, if   the   reviewer has not determined   what   program   by admin, then the menu   in the   home   page   will only   appear   2 menus   namely   Home and Logout. If the reviewer   has been   determined   to assess what   program by the admin, then the menu in the   home   page will   appear   3 menus   namely   Home,   System Services, and Logout

Form page

On   this form page will display the form   that   will be   filled out by the reviewer before   filling   out the form to be received by the   reviewer, Figure 3.8.

Figure 5 Form page view

The features available   in the form   page are already   designed   automatically   by   the system,   such as being able   to directly select   all   the menus   in this form   page.

Form Filling Page

After the reviewer fills   out the form   that has been   available, the user will be directed to the   boring filling page, on this boring   filling page there   is a purpose that the reviewer   is required to   conduct a quality assurance   evaluation, then   the   reviewer   will   evaluate up to   69   indicators, Figure 7.

Figure 7. Form fill page view

reviewers will   select   directly   and   randomly the   selection   to   be   selected,   then   automatically   the value   will   appear   on   the score input

View   Results page

After   the   reviewer   evaluates   as many as   69   indicators,then the reviewer will   continue to   see the results   that have been   filled by the reviewer,   the evaluation results   can   be   viewed   table   or   graphically.   Figure 3.10.   And reviewers   can   see the weight   that   has been   filled,Figure 8.
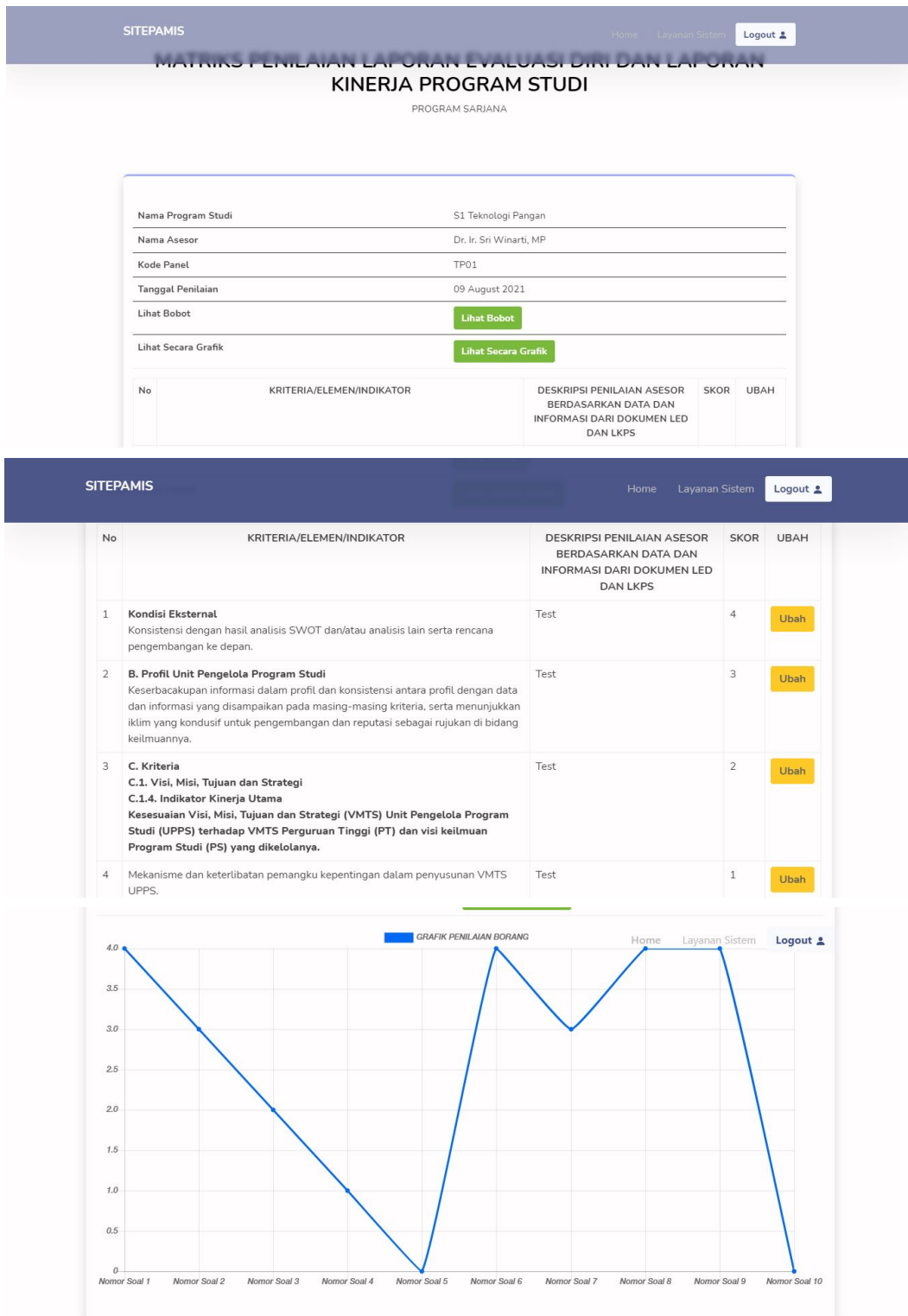
Figure 6 Page views view results in tables and graphs

Figure 9. Page view sees evaluation weight results

The results of the above value are obtained from the reviewer's results by filling in as many as 69 items.

Assessor page

On this assessor page will display evaluation data that has been filled out by reviewers. Assessors here aim so that the assessor can see, assess, and assess the results of the evaluation. Figure 9. In addition, this page also displays the results of the evaluation in a table, Figure 9.

Figure7 Assessor page view

Figure **11**. Assessor Print View

Thispage,   assessors   can   see   all the value   results of reviewers who   have   filled   all forms as many as   69   items, the feature   here can   also   print   out the results   of the assessment.

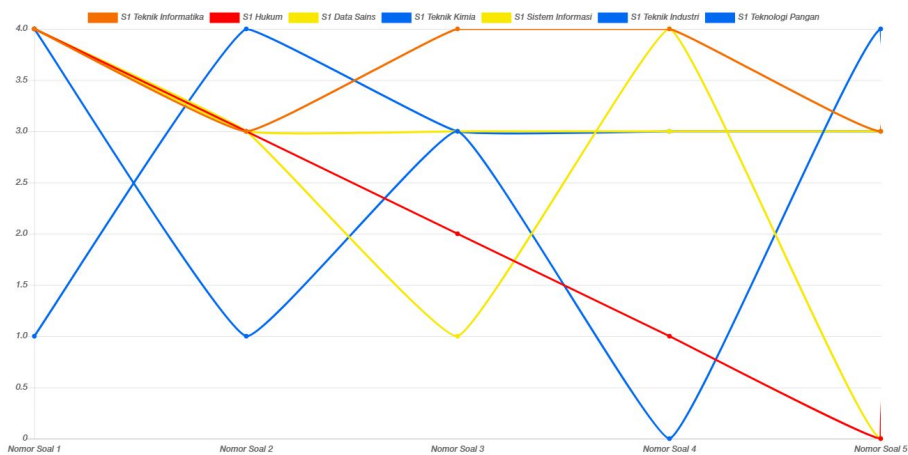### 3.3.1   Study Program page

Figure8 Study Program page view

On the page of the Study Program conducted by this Manager will display all the results of reviewer evaluation in the form of graphs, each study program and faculty has a different color, such as Seen in Figure 12.

4. Conclusions

This research has completed the design and manufacture of an Integrated System for Evaluation of the Implementation of Internal Quality Audits and user-side ISO using several frameworks. Based on the results of the research that has been done, it can be concluded that the design and manufacture of SITEPAMIS through several processes, namely:

The preliminary study process is carried out by interviewing the Institute for Development and Quality Assurance (LP3M) and literature studies from studies related to SITEPAMIS and combining programming languages and other features.

The evaluation process for internal quality audits and ISO using SITEPAMIS is designed to make it easier for LP3M who have difficulty monitoring the results of the assessment from reviewers which were previously manual and web-based, now they can be used with mobile (android)

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