Data Processing System Improvement in New Student Admission Selection of State Islamic Higher Education in Indonesia Using Information Technology Approach

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ABSTRACT

Continuous self-improvement should have been a part of every Muslim in order to always be better than before. Similarly, the implementation of the national new college admissions of state Islamic higher education in Indonesia (called SPMB-PTAIN) that held regularly every year should be able to be better from year to year. This paper will discuss the improvements made to a data processing in SPMB-PTAIN as such particular continuous improvement activities of integrated system in new college admissions for 53 institutions of state Islamic higher education in Indonesia. Improvements done by proposing a system that utilizing the function of data and information control and data monitoring on SPMB-PTAIN data processing. The system has been tested on the next SPMB-PTAIN event. Beside from being a real form of continuous improvement that is done, the system can also provide transparency of data processing on the implementation of the SPMB-PTAIN. Therefore the similar model may be applied to other systems related to public services to provide transparency and gain the public trust of public services institutions itself.

KEYWORDS

Continuous Improvement, Data Processing, Work Flow, Admission Process, Monitoring System

1 BACKGROUND

Continuous self-improvement should have been a part of every Muslim. Therefore it is proper when in any periodic activities carried out by a Muslim will become better than before. Similar conditions should also occur in the implementation of the new college admissions of state Islamic higher education in Indonesia that held regularly every year.

New college admissions to state Islamic universities in Indonesia is always held periodically. Mechanism of admission would be done through a national selection for 53 institutions called Seleksi *Penerimaan Mahasiswa Baru Perguruan Tinggi Agama Islam Negeri* (SPMB-PTAIN). In 2013, this system is used by for about 200 thousands new students. At the end of each implementation of SPMB-PTAIN always end with the evaluation meeting. In this meeting, all issues occurred during the activity will be exposed and evaluated. The results of this meeting should be a reference in next similar activities preparation coordination meeting.

From the results of the evaluation meeting of SPMB-PTAIN 2012, some issues were exposed that related to the processing of data. Some issues are even categorized as critical issues that closely related to the transparency of the implementation of data processing in the SPMB-PTAIN. Besides, these issues can also be a potential problem in SPMB-PTAIN implementation. Some issues related to the data processing will be presented in this paper.

Improvements that proposed related to these issues resulting the monitoring system of data processing as the subject in this paper. This monitoring system that has been tested on the implementation of SPMB-PTAIN 2013, was made such a clear form of continuous improvement in data processing of SPMB-PTAIN.

2 ABOUT SPMB-PTAIN

Based on the results of the Society of Leaders of Indonesia State Islamic University meeting in Malang on October 15, 2012, the Rector and Chairman of National Higher Education under the coordination of the Director of Islamic Higher Education, Directorate General of Islamic Education Ministry of Religious Affairs to agree on the selection of new students together in the form of Selection Admissions of State Islamic University (called SPMB-PTAIN). SPMB-PTAIN 2013 is the only pattern of selection conducted jointly by all the State Islamic Higher Education in Indonesia in one integrated system and held simultaneously. SPMB-PTAIN 2013 conducted by (1) the path of academic achievement, and (2) a written test. State Islamic Higher Education will capture at least 80% of new students in any course of study through the SPMB-PTAIN with details 50% from academic achievement while 30% through the written exam. Thus, PTAIN only hane 20% to capture new students in each course through new admissions on their own system or with other forms [5].

Selection Admissions of State Islamic Higher Education in Indonesia (SPMB-PTAIN) is selection into the State Islamic Higher Education, including State Islamic University (UIN), State Islamic Institute (IAIN), and State Islamic High School (STAIN) through written examination conducted simultaneously nationwide with 53 Higher Education in Indonesia under the coordination of the Directorate General of Islamic Education, Ministry of Religious Affairs of Republic of Indonesia. Figure 1 shows the scheme of registration process in SPMB-PTAIN as published on its official website [5].

SPMB-PTAIN organizers are joint committee formed by the Minister of Religious Affairs of Republic of Indonesia. SPMB-PTAIN Executive Committee have a main purpose of planning, implementing and evaluating SPMB-PTAIN. SPMB-PTAIN committee structure consists of Protector, Steering Committee, Responsible PIC, Chairman, 1st Chairman, 2nd Chairman, 3rd Chairman, General Secretary, 1st Secretary, 2nd Secretary, 3rd Secretary, General Treasurer, 1st Treasurer, 2nd Treasurer, 3rd Treasurer, Exams Coordinator, Registration Coordinator, Information and Communication (ICT) Coordinator , Selection Coordinator, Coordinator of Region II, Coordinator of Region III, Coordinator of Region IV, Coordinator of Region V, Coordinator of Region VI and Data Processing

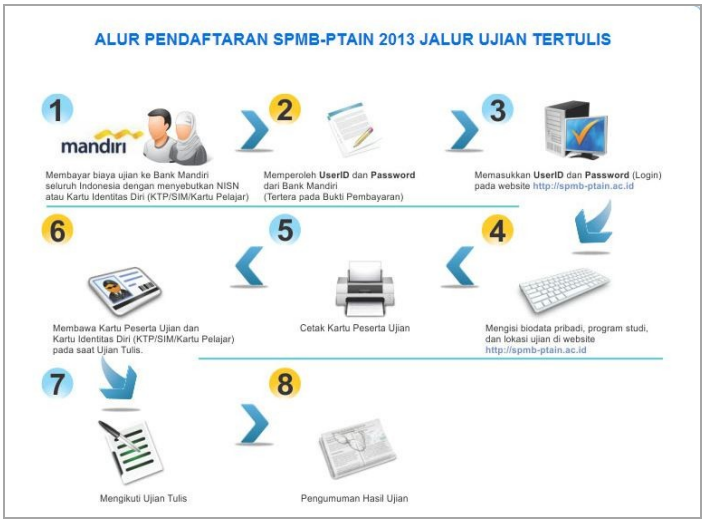

Figure 1. New College Admission Process

3 DATA PROCESSING FUNCTION IN SPMB-PTAIN

In general, function of the data processing in SPMB PTAIN is managing the results of examinations. In figure 1 above, the data processing team involved between step 7 (take a written test) and step 8 (announcement of exam results). There several process between these two steps which is the process of assessment and examination results performed by the data processing team.

Specifically, based on SOP, job description to be performed by the Data Processing is as follows [1]:

1. Scanning all of exam answer sheet (called LJU – *Lembar Jawaban Ujian*)
2. Receive all participant list from online registration (the data were provided by ICT coordinator team).
3. Marking process (Flagging) any of unfair or cheating that was reported as well as the

absence of exams participants and finishing the data validation from the scanning process of LJU based on participant data online registration results.

4. Assessment process on sampling participant exam answers for answer key analysis purposes.
5. Develop a statistical report of the appraisal value of the sampling participants for answer key analysis purposes.
6. Assessment process on all participant exam answers using the answer key that has been declared as valid answer key.
7. Setting up the all participant data forms that have been equipped with test scores with the format specified and sent it to the ICT coordinator.
8. Creating statistical reports for analysis of assessment results.
9. Creating an attendance report of all participants.

Figure 2 shows the workflow of tasks to be completed by data processing team based on Data Processing job description in the SPMB-PTAIN SOP book.

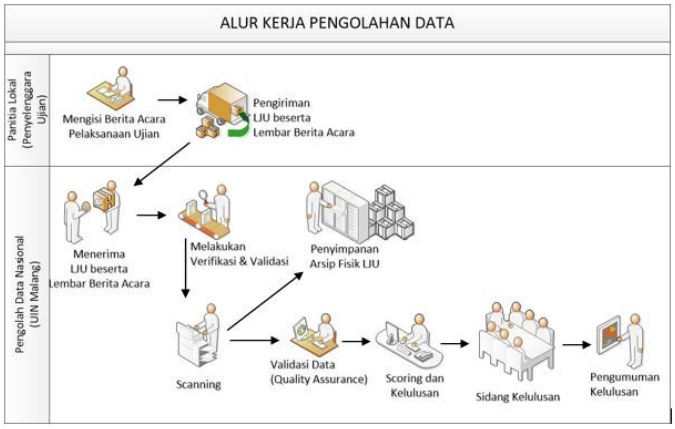

Figure 2. Data Processing Workflow

To run the workflow described in figure 2, the data processing work team was formed in small team consist of:

1. Verification and Validation Team.
2. Document Archiving Team.
3. Scanning Team.
4. Scoring Team.
5. Assessment Result Release Team.

Figure 3 shows details of Data Processing Workflow Formed by Smallest Team or Units.

When we observe more detail on data processing process in SPMB-PTAIN it has such a long stages. There are at least 10 steps in the process that starts from LJU delivery along with the accessories (letter of statement from exams implementer, attendance form, etc.) by the Local Exams Organizing Committee (called Panlok – *Panitia lokal*) to the National Data Processing. Next process followed by the handover of LJU and proceeded with the verification & validation process. Validated date then submitted to the LJU scanning. The results of data captured by scanning team the revalidated (a quality assurance process). While at the same time the physical of LJU then stored as archives. Captured data will be given to the scoring and passing team then for assessment and rank determination in accordance with applicable regulations. The results obtained from the scoring team will be the data basis of national graduation meeting agenda. The results of this national meeting will end with a graduation announcements to the public [4].

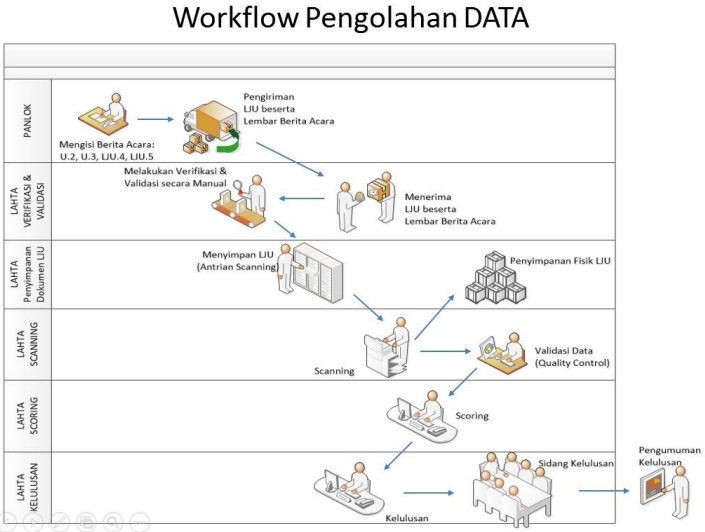

Figure 3. Details of Data Processing Workflow per Units

4 SOME ISSUES FROM CURRENT STATE

From the results of evaluation of SPMB-PTAIN 2012, some issues are found in the implementation of data processing in 2012 [2]. Table 1 shows details of that issues.

Table 1. Some Issues in Data Processing of SPMB-PTAIN 2012

No.	Issues
1	There is a delay in delivery of LJU and disrupting the flow or process and queue of the next process of data processing.
2	There are some errors in the recording report by exam supervisors in field, such as: a. The number of participants present in the exams location was not in accordance with the actual situation. b. Exams supervisors are fill biographical data of exams participants that did not attend in the Exam Answer Sheet (LJU)
3	There is some discrepancy between the physical LJU and LJU report that make the conformity control of LJU is not running
4	There are some participants who make a mistake to fulfill biographical data, including a fairly crucial data such as: a. Participant Test Number b. Exams Code

5 THE NEED OF DATA MATCHING CONTROL IN DATA PROCESSING

From several issues that occur as shown in Table 1, the data processing team propose the steps of recommendations for improvement. Recommendations are made based on the factors causing these issues. Presumptions of the main factors causes some issues in table 1 is came from the large number of documents and that handled by exams implementer team in field (such as number of LJU, statement of purpose, participant attendance list, etc.), and large people involved in the data processing. This make a data matching control in data processing are needed.

Table 2. Recommendations and tools needed to control data processing issues

RECOMMENDATIONS	TOOLS
1. Better planning coordination are needed in delivery of LJU to reduce the possibility shipping delays.	1. LJU delivery schedules and time arrival estimation with delivery reporting features are needed in information system application no.2
2. Recommendations for evaluation No. 2 and 3 (table 1) is Develop and Implement Exams Reporting Applications with benefits: a. Find out more detailed information early about exams participant attendance list b. Attendance list report can be used as a data control of physical LJU received and processed c. Simplify the process of verification and validation of LJU. d. Detection and reporting of unfairly information. e. Perform grouping	1. Develop and Implement Reporting Exam applications, with features: a. Online apps, and fulfill as soon as possible after the exam ends b. Have notification function when its not fulfill yet after the exams done and sent it to the relevant parties. c. Details the Presence/absence of examinees d. Provide comparison list of examinees with database e. Have notification function when there are discrepancies on the comparison results f. Printing results of attendance report list for LJU admission control tool.

of unfairly acts as a justification for graduation meeting. f. Find out more information early about mismatches amount of LJU and perform data tracking. g. Avoid the occurrence of errors and irregularities in LJU information, such as no/incompatibility examinee number, etc..	g. Scan attendance list report evidence h. Unfairly report and Grouping levels of unfairly acts
2. Scanning team does conduct intervene in the LJU who has been filled by exam participants. LJU are left as its original condition. 3. Do a socialize campaign about the importance of the accuracy of LJU by exam participants.	3. Socialize campaign can be done using several medias such as Poster, Email, Web announcement, etc. 4. The announcement shall submit the statistics data that there are many students who fails the exam due to an error of filling exams numbers, etc. The campaign can also be done by submitting LJU fulfillment tips.

From the recommendations that have been made then its followed by formulating tools needed to control information and data in data processing. Table 2 shows the recommendations and requirements for the function of tools that meet the recommendations provided.

Some important things that need to be maintained the compliance in information and data control including:

1. Number of Applicants.
2. LJU Delivery date.
3. Number of Exam Participants.
4. Number of LJU.
5. Number of LJU scanned
6. Number of data capture in scan process
7. Number of data for scoring
8. Number of data scoring result
9. Number of participants who pass the exams

Figure 4 shows the control needs data on the suitability of the information and data processing workflow based on the need of controlling the potential inconsistency of data and information between the parts involved in the workflow.

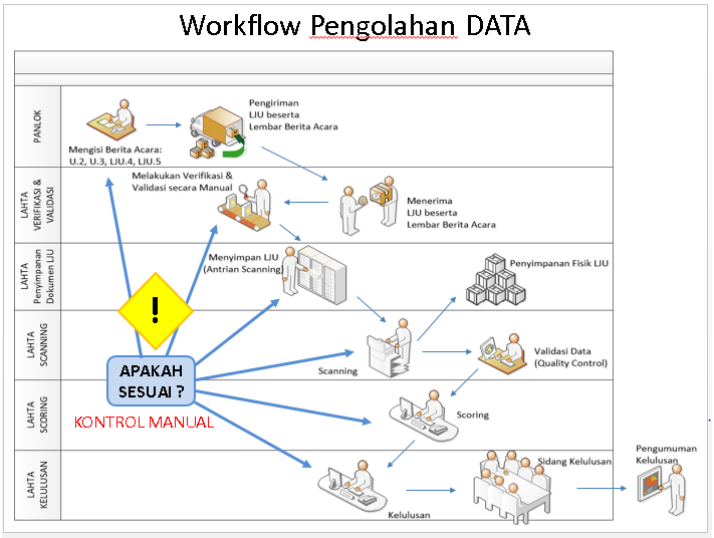

Figure 4. Needs in Information and data Control on Data Processing Workflow

6 THE IMPROVEMENT

From issues that occur in the implementation of previous SPMB-PTAIN, and also from the recommendations and tools needed and identified for information and data control on SPMB-PTAIN data processing, reflected that its required such an information system which is useful for compliancy of information in the data processing.

Figure 5 below shows the location of the tools to control the compliancy of the information and data in data processing workflow.

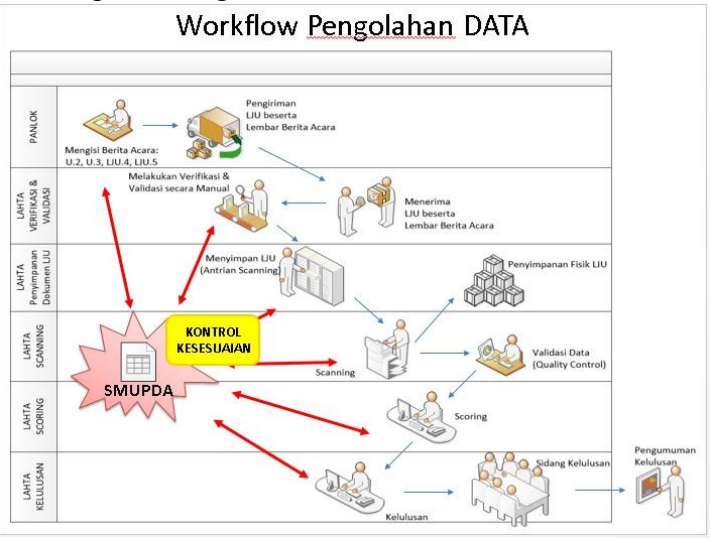

Figure 5. Position of Information and Data Control in the Data Processing Workflow

Here is an explanation of the work steps of using monitoring tools in data processing workflows. Starting from the data entry attendance list report by exams supervisor to the system, the data that is entered into the system by exam supervisors will be used in verification process. The data verification reports will be used then by the scanning team, the scanning results will be reported into the system which will then be used by the scoring team. Scoring team results are reported to the system and will be used then by the graduation team.
To find out the status of each stage in the data processing process, LJU tracking facility are created in the system. Therefore this will made a transparency of the status of each exam participant status at every single stage in data processing processes.

If we look from the side of exam participants, the tracking facility is necessary to know the assurance of LJU processing through data processing process. For exams committee, the tracking facility is a form of optimization services that can be provided.

7 SUMMARY

1. Monitoring system data processing is implemented in SPMB-PTAIN 2013 have been reviewed and have a solid foundation to be implemented.
2. The system implementation of Data Processing improvement in SPMB-PTAIN 2013 is part of governance activities.
3. The system are also part of transparency in public service activities.
4. The system provide information of the examinees and obstacles in the field in real time.
5. The system are also act as tracking model in each phase of data processing process.
6. The system have functionality of early detection of discrepancies.
7. The system act as information recapitulation report in real time on each phase of data processing.
8. The system made the control and monitoring function are based on system, rather than on personal.
9. The system is a model in realization of continues improvement of the previous year's activities.

8 DISCUSSION AND NEXT RESEARCH

Although the improvements model has been implemented in the SPMB-PTAIN 2013, in fact the system is still in the testing stage. The full implementation of such a system is also needs to be improved especially with the human resources involved in data processing activities.
Therefore, as a continuation of this study there will be a needed of evaluation on the successful implementation of the system at least 2 things. First, from the tools itself, whether its ready meet the data processing needs of SPMB-PTAIN overall in this case is the control of information and data. Secondly, the evaluation of the factors that cause the success of the system to be implemented due to numerous human resources that using the system.
Finally, the control system of information and data is intended as a solution to some issues that

happened earlier activities as part of improvement process. Moreover this system can also be used as a model that provides transparency of data processing. Similar systems can be developed to provide transparency of information and data processing on other public services.

REFFERENCE

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