

Business Process Reengineering for Optimal Processes: a Case Study of Student Academic Administration Process Enhancement in University of Surabaya

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Abstract— Regardless the cost and risk, many organizations implemented business processes reengineering (BPR) with hope that it could improve the organization's performances especially in term of cost reduction, quality improvement, better service, and speed. Recognizing the cost and the potential advantage, this study seeks to understand how a successful BPR could lead to process optimization by thoroughly evaluating a case study of BPR implementation in student academic administration process in UBAYA. Evaluation results suggest that a successful BPR implementation could significantly improve the reengineered processes in all four dimensions of cost, time, quality and flexibility.

Keywords— *Business Process Reengineering, Advantage, Success*

I. INTRODUCTION

Business Process Reengineering (BPR) is “the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical measures of performance such as cost, quality, service, and speed” (Alter, 2002; O'Brien & Marakas, 2007). Such potential has convinced many organizations to implement BPR and tempted many other organizations to do so in the near future (Ranganathana & Dhaliwal, 2001).

Acknowledging the BPR's potential advantages, the University of Surabaya (often known as UBAYA), a leading private university in Indonesia (Priyambodo, 2010) seeks to excel their services and eventually, improve their competitiveness by reengineering their business process. Among the many BPR initiatives engaged by the university, one major IT enabled BPR is interesting to be examined and thus, will be the case of this paper. The BPR process is firstly initiated in 2009 and claimed to be successfully implemented in 2010. It covers many of the university's strategic issues such as student admission, student's academic and non academic activities, tuition fee management, up to administering the teaching processes. The IT system used to

enable the BPR has become a foundation to initiate continuous business processes improvements until the day this paper is written.

This study focuses on examining how a successful BPR implementation could optimize the engaging institution's processes by evaluating a case study of student academic administration enhancement in UBAYA. To fulfill the objective, this paper will start with a review on past BPR implementation literatures, followed with discussion on the case's story and findings, and finished with a conclusion.

II. LITERATURE REVIEW

Business Process Reengineering can be defined as “the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical measures of performance such as cost, quality, service, and speed” (Alter, 2002; O'Brien & Marakas, 2007). While there seems to be a consensus over its fundamental concept, debates still exist over characteristics of a BPR project and how it should be done. Attaran (2004) and Dennis et al. (2003) argue that a BPR project should involve redesigning the fundamental and strategic business processes of an organization to achieve remarkable improvements. Dennis et al. (2003) further argue that a BPR should have three mandatory attributes: have large objectives, apply “clean-slate” changes where the legacy system is to be totally replaced with the new system, and be initiated by the top management.

Their arguments are the opposite of Malhotra's (1998) arguments who suggest that BPR with large objectives, totally replaced the old system with the new one, and initiated by top management are hard to be found. His argument is aligned with Davenport and Stoddard's findings (as cited in Malhotra, 1998) which shows that many companies implemented incremental and continuous BPR activities.

Regardless the disagreement, both sides seem to agree that BPR implementation is prone to failure but has the potential to produce worthwhile improvements when

successful. In order to measure the significance of improvements within the case study, the four dimensions model of process redesign effects as proposed by Brand and Van der Kolk (as cited in Reijers & Mansar, 2005) is used.

The four dimensions which also known as the *devil's quadrangle* consist of cost, quality, time, and flexibility. The devil's quadrangle (see Figure 1) stresses the difficult trade-off which usually has to be made during the BPR implementation project.

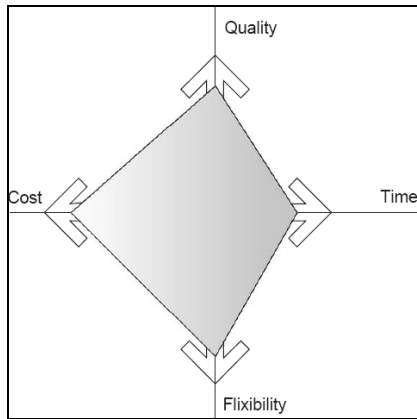


Figure 1. The Devil's Quadrangle (Reijers & Mansar, 2005)

III. THE CASE STUDY

This paper focuses on in-depth study on the case of student academic administration process enhancement in UBAYA. Among the many initiatives to improve the academic administration processes, the case study will focus on recent business process reengineering in two consecutive processes: administration of the student's enrollment to subject and generating exam participant list. The reengineering initiative is considered to deliver a major positive benefit for various stakeholders involved in the academic processes. Therefore, the success story is worth to be examined. Next, discussion on the case study is structured in two sections one section for each process. Each section will consist of two parts: the analysis of the As-Is process which describe the business processes used before the BPR implementation and the implementation of the To-Be process which explain the business process after the BPR implementation.

A. Administration of the Student's Enrollment to Subject

Before the BPR implementation, the university encountered difficulties to definitively confirm student's enrollment data for each semester. While most students managed to enroll their subject correctly before each semester starts, some students, with their own unique issues, unable to enroll their subject until the end of semester. Such issue has confused many stakeholders in many occasions especially lecturers who could not confirm number of their students in each subject until the end of semester.

Figure 2 shows the Student enrollment to subject process before the BPR. The figure shows that there is an infinite looping which allowed student's to change their enrollment to subject in an un-timed manner. Such trait made the class

attendance list could not be held as a definitive list of the class participants even until the very last week of semester. The bureau of student academic administration print the class attendance list many times over the semester (one printing result can be used for four class sessions) and since the enrollment data could change at any time, participants listed in the latest class attendance list can differ from the previous one.

Further, as depicted in Figure 2, the bureau of student academic administration was printing the student subject list. This student subject list is recognized as a legal evidence of student's subject enrollment in a particular semester. It can be used by student as evidence that he or she is allowed to follow an exam even if his/her name is not listed on the exam attendance form. While this document holds a critical role, many students were reluctant to fetch it. Many students' subject list documents were left unclaimed (i.e. in some faculties, the percentage of unclaimed subject list reached more than 50%). Such fact shows a strong indication that the student's subject list is no longer considered important for student. They seem to believe if their name already listed in the class attendance form then their enrolment to that subject is confirmed.

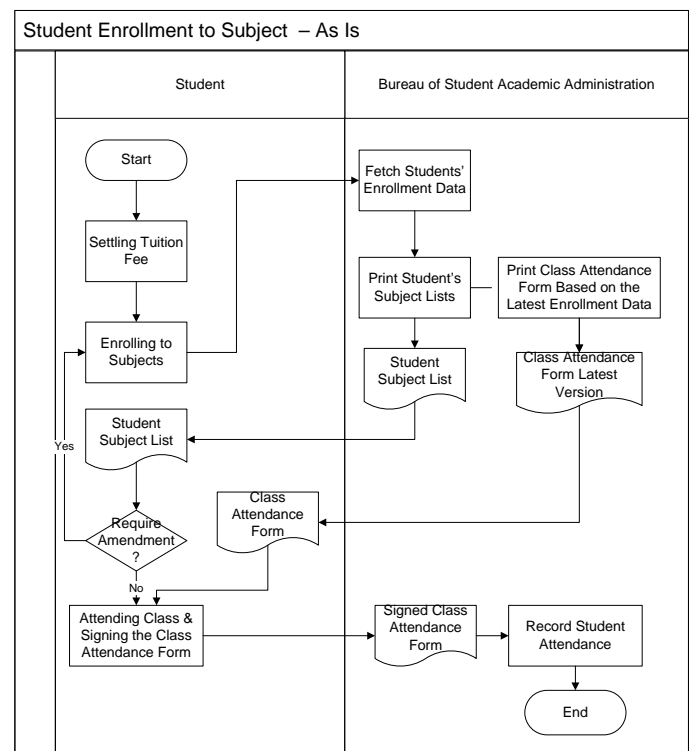


Figure 2. The Student Enrollment to Subject As-Is Process

Evaluating the issues, the university decided to reengineer the process. It is mandated that un-timed student enrollment is no longer acceptable. On the other hand, the university also acknowledges that bad things could happen to some, among nearly ten thousand, of its active students. Such things are often considered a force majeure to the student and made them unable to properly confirm the subject enrolment before the semester starts. A compromise between the two should be met

and therefore a new business process for the student enrolment to subject is implemented as shown in Figure 3.

Within the new process, students are permitted to amend their subject enrollment up to the fourth week of the currently running semester. The permission itself is only given to those who encounter an unavoidable issue which disallow them to properly enroll to subjects before the semester starts. Such process made the university able to confidently confirm the student enrollment data by the end of week 4 at the very late and on the other hand, still allow some allowance for those in special needs to submit their enrollment after the semester starts.

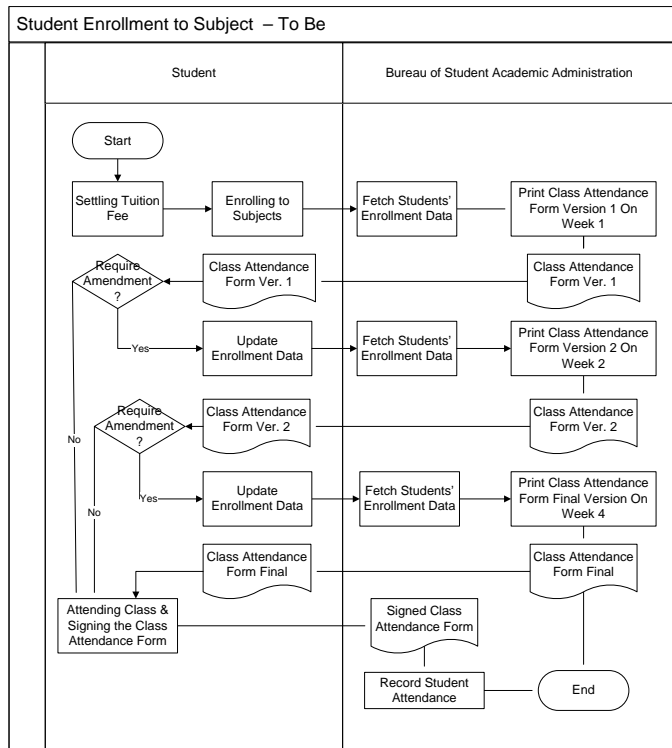


Figure 3. The Student Enrollment to Subject To-Be Process

Figure 3 also shows that the Student's subject list is no longer printed. After the BPR implementation, class attendance form is considered as the legal document regarding student's enrolment. If the student's name is not printed within the class attendance form as expected then he/she has to immediately amend the enrolment data before commencing week 4. On top of that, the student portal (my.ubaya.ac.id) is also used to show the latest version of the student enrolment data. Although student enrolment data as shown in the student portal is the most recent version, it is guarantee that after week 4, both the class attendance form and the portal will shows the same definite version of student enrollment to subject data.

B. Generating Exam Participant List

Similar to the student enrollment issue, the main problem of the prior BPR implementation within the administration of the exam participant list is difficulties to acquire a definitive list of students who are allowed to participate in a particular exam. The university mandates that only those with minimum

of 75% attendance rate could follow exam for the corresponding subject. However, under special circumstances, some students are allowed to have less attendance rate and still able to participate in the exam. Figure 4 shows how the administration of the exam participant list was previously done. Previously, exemption toward the 75% attendance rule was given by either the faculty or the bureau of student activities administration.

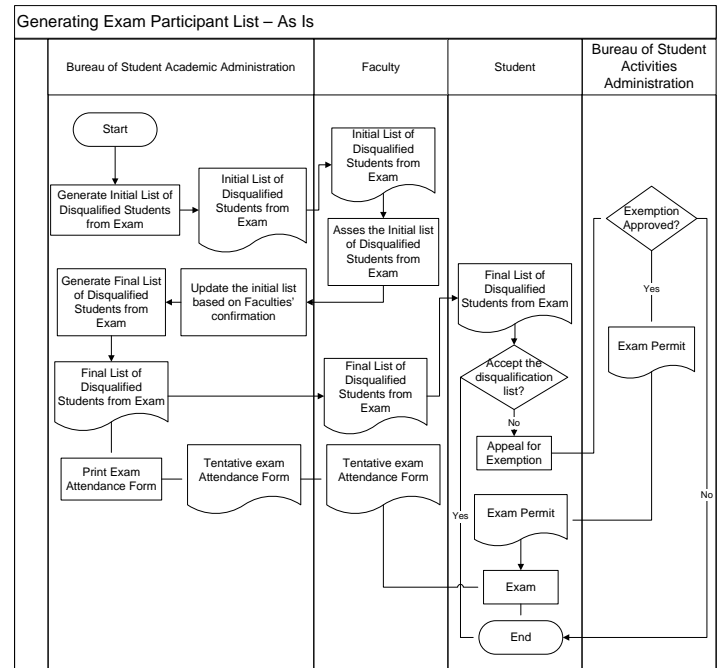


Figure 4. Administration of the Exam Participant List – As Is

Initially, the process starts from bureau academic administration generating the initial list of disqualified students from exam and gave the list to the corresponding faculty. After analyzing the list, the faculty will then submits names to be exempted from the disqualification list based on a certain strict criterion. Based on that recommendation, bureau of academic administration will generate the final list of students disqualified from exam and print the exam attendance form which contains the exam participant list. This final list is given to the faculty to be announced to students. Student who did not accept being disqualified, could attempt to appeal the list via the bureau of student activities administration. If the student appeal met the bureau's strict criteria and thus eligible for disqualification exemption then the bureau of student activities administration will issue a permit to follow the exam. The appealing process consumes several days and often time, student is allowed to participate in an exam while waiting for the appeal result.

Such traits has put the exam committee in a dilemma, they could not simply forbid student from participating in an exam even if the exam participant list clearly stated that the student is disqualified from the exam since the student could simply argue they are in the middle of appealing process. On the other hand, such process also put the bureau of student activities administration in a position which favors to accept the

student's appeal since sometimes student lodge the appeal after they have done the exam.

To avoid further problems, the university decided that the process needs to be changed so that the exam participant list can become a definitive list of who could participate in an exam. After several discussion with various stakeholders, new business process as depicted in Figure 5 is proposed.

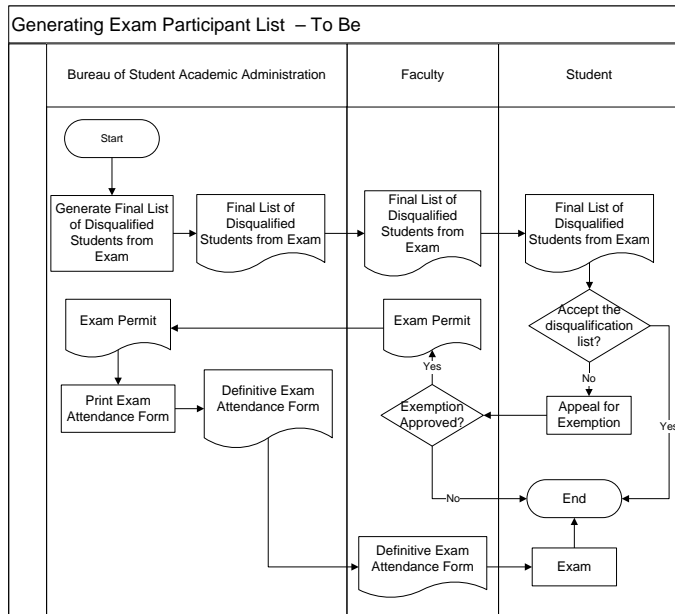


Figure 5. Administration of the Exam Participant List – To Be

As can be noted from Figure 5, the new process removes the need of printing initial list of disqualified students from exam. The bureau of student academic administration directly print the final list of disqualified students from exam and the faculty will directly announce it to their students. If disqualified students did not accept the list, then he/she could raise an appeal for exemption to the faculty. Authority of exempting the 75% attendance rule is centralized to the faculty only. Though the bureau of student activities administration no longer holds the authority to exempt the 75% rule, student could request a recommendation from them as a backup for their appealing process to the faculty. Time limit to issue the exam permit is restricted to 4 working days before the exam period. This limitation is required to allow the bureau of academic administration preparing the definitive exam attendance form. The exam attendance form in the new process is considered as definitive as it already has a definitive list of participants who can join the exam with no chance of exemption afterwards.

IV. RESULTS AND DISCUSSION

As discussed in the literature review, results of the BPR implementation on each process will be evaluated based on the four dimensions: cost, quality, time, and flexibility.

A. Administration of the Student's Enrollment to Subject Results

Cost - In term of cost effectiveness, it is easy to notice that the new process is more efficient that the initial process before the BPR implementation for many reasons. The new process does not require the bureau of academic administration to print the student's subject list so the university could save by not reducing the amount of paper used and save the human resources used by eliminating the effort to distribute the student's subject list to students. As it consumes less paper, it can be concluded that the new process is not only more cost effective but also more environmental friendly than before.

Quality - The BPR implementation significantly improves the student's enrollment data quality. Wang and Strong (1996) argue that data quality can be measured based on four distinct dimensions: accuracy, relevancy, representativeness, and accessibility. Based on the four dimensions, data quality produced by the new system outstand the data quality produced by the prior system. While the old system unable to provide an accurate student enrollment data, the new system manages to provide an accurate list of student enrollment to subject data by the end of week four. The new process also considered as more relevant and representative as it only has a single version of truth about the student enrollment data that is the class attendance form. If student's name is listed within the form then his/her enrollment to that subject is confirmed. Student could also access the latest update on his/her enrollment using the student portal which make the new system has more accessibility than the previous system.

Time - The amount of time required for students to notice their current enrolment status has been considerably decreased after the BPR implementation. In the old process, student has to wait for the student's subject list printed by the bureau of student academic administration and fetch it physically. The distribution process itself, could consume up to two working days. After the new process implementation, student could get the latest update of his/her subject list at the same second the bureau updated the student's enrollment data via the student portal at the student's own convenient time and place.

Flexibility - Indeed, the old system offer a somewhat more flexible system as it allows students to amend their enrollment anytime within the semester. However, flexibility should also be contained to ensure data reliability. The new system control the flexibility offered to students to amend their subject enrollment up to the fourth week of semester. Such flexibility is considered flexible enough for student and on the other hand, sufficient for the university to obtain a definitive list of student enrollment data. Therefore, although not as flexible as the old system, the new system is considered as having a better kind of flexibility.

B. Generating Exam Participant List

Cost - Similar to the previous process, cost saving after BPR implementation for administering the exam participant list also enabled by eliminating unnecessary printing process. The new system eliminates the need for printing initial list of disqualified students from exam. As the university open

approximately 1,000 classes per semester and for each class, student disqualification data were printed in a set of two carbon copy sheets. Eliminating the initial list has saved about 2,000 sheets of papers per semester. While the amount of money saved is relatively insignificant, reducing the paper usage is always a worthy effort toward a greener environment.

Quality – The exam participant list produced by the new system is definitely has better quality than before. Unlike the previous one, the exam committee could now use the participant list to confirm who is allowed to participate in an exam and vice versa. Further, the new system also puts authorities over academic activities to its rightful party. An exam is an academic activity, thus, faculty as the academic process owner should held full responsibility and control over the participants. With regards to exemption over the 75% attendance rate rule, bureau of student activity can only acts as a supporting unit which is allowed to provides supporting information for the faculty to decide whether the student is worth to be exempted or not. The ability to put authority to its rightful hand further verifies the quality improvement enabled by the new system.

Time – Time required to produce a definite exam participant list has been significantly reduced after the BPR implementation. Prior the implementation, amount of time required to print the initial list of student disqualification for exam until definitive exam participant list is acquired could reach more than four weeks. After the BPR implementation, list of definitive exam participant list can be obtained in less than two weeks.

Flexibility – Similar to the previous process, the old system is considered as too flexible which made university unable to gain proper control on determining students who are allowed to participate on a particular exam session. Within the new system, disqualified students are free to lodge an appeal with their own circumstances but the appeal has to be done one week prior the exam period.

V. LIMITATION AND FURTHER STUDY

The case study shows evidence on how a BPR implementation could improves business process in a higher education institution. While findings in this paper might be applicable for similar organization encountering similar issues, it is likely the findings are less applicable in other kind of organization.

Interesting direction for future study would be to justify worthiness of a BPR implementation. Although a successful BPR implementation will highly likely results in process improvements, it is interesting to measure whether the improvements valued more than it costs.

VI. CONCLUSION

Business Process Reengineering (BPR) is “the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical measures of performance such as cost, quality, service, and speed” (Alter, 2002; O'Brien & Marakas, 2007). Acknowledging, the potential, this paper seeks to evaluate how a successful BPR

implementation could optimize the engaging institution's processes by evaluating a case study of student academic administration process enhancement in UBAYA. Evaluation results confirm that a successful BPR implementation could improve processes in all four dimensions of cost, time, quality and flexibility. An interesting direction to extent this paper is to justifying whether the improvement gained after a BPR implementation value more than the amount of resource consumed during the BPR implementation.

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