Evaluation on BPR Implementation in Ethiopian Higher Education Institutions

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Abstract

This paper analyzes business process re-engineering (BPR) implementation at Ethiopian higher education institutions (EHEI?s) i.e., Mekelle University, Mekelle, and Aksum University, Aksum. It investigates the current status and effectiveness of BPR implementations at the EHEI?s. It reviews the literature relating to the hard and soft factors that cause success and failure for BPR implementations, classifies these factors into subgroups, and identifies critical success and failure factors. Finally, it explains how these factors influence the process of BPR implementation in the higher institutions. Primary data were collected by means of survey questionnaires from academic staff members and interviews with the academics core process owners. One hundred sixty survey questionnaires were distributed to Mekelle (110) and Aksum (50) universities. All the questionnaires were filled and properly received from both universities. The respondents for the survey were all academic staff members from all departments and posts (technical assistant, graduate assistant, assistant lecturer, lecturers and professors). The findings of the research show that the institutions? performance is not effective in terms communicating and accomplishing the goals and objectives of BPR. The current progress of BPR in the institutions is also at low level. The findings also show that effective utilization of resources, having BPR motivated by customer demands, good information exchange and flow, continuous performance improvement, using technology as enabler not as solution, developing and communicating clear written goals and objectives, proper alignment of BPR strategy with the corporate strategy, using progress evaluation are the most important factors that enable BPR implementation to be successful, whereas lack of employee training, unrealistic report to outsiders that hide actual progress of BPR implementation, management frustration with slow business results, lack of management deter

Index terms— Business process reengineering, Ethiopian Ethiopian higher education institutions.

1 Introduction

usiness process reengineering is dramatic change that represents the overhaul of organizational structures, management systems, employee responsibilities and empowerment, performance measurements, incentive systems, skills development, and the use of information technology. Successful BPR model can result in great reductions in cost or cycle time, and improvements in quality and customer services. On the other hand, BPR projects can fail to meet the inherently high expectations of reengineering. Some organizations even destroy the morale and momentum of employee built up over their lifetime because of poor BPR implementation.

According to Ranganathan & Dhaliwal (2001), BPR is a popular management tool for dealing with rapid technological and business changes. As per Al-Mashari & Zairi ??2000), BPR creates changes in people, processes

and technology. It tries to integrate stakeholders and get a better way of doing things, Siha & Saad (2008) and Cheng et al. (2006). Shin & Jemella (2002) stated that Successful BPR implementation enables organizations to improve their performances.

According to Hammer (1990), Davenport & Short (1990), many organizations have reported dramatic benefits gained from the successful implementation of BPR. However, not all organizations implementing BPR projects achieve their desired results. According to Hammer & Champy (1993) **??**0% and Hall et al. (1993), 50-70% of BPR initiatives fail to deliver the expected results. Implementation of BPR requires fundamental organizational transformations. Thus the implementation process is complex, difficult and needs to be checked against several success and failure factors.

As per Remenyi & Heafield (1996), the failure of BPR projects is costly, because of the resources invested, the disruption it brings to the organizations and the adverse effect to the morale of the workers. This effect will be more adverse to higher institution like Ethiopia's where the economic and human resources are limited and underdeveloped. Since 2008, many studies have been done focusing on reengineering and implementing BPR in EHEI's. But little focus was given to the investigation of the progress or effectiveness of BPR implementations at the universities. This study fills According to Al-Mashari & Zairi (1999) to ensure success, one should adopt certain best practices and watch out for certain pitfalls. As Davenport (1998) stated, all over the world and also in Ethiopia BPR is a big catchphrase in the business environments and so popular that one wonders if it actually delivers value or is just propaganda. According to Mayer & DeWitte (1998), many organizations even use improperly or are simply adopting BPR without analyzing their business environments. Many studies have shown that success in BPR is not easy and indeed failure is not an exception, **??**archand & Stanford (1998). According to **??**irmay et al. (2009), Ethiopian universities are not able to effectively discharge their national responsibilities in producing qualified human power and BPR was started to solve the problem and enhance the universities performance.

The general objective of this study is to identify critical success factor's (CSF's) and examine the effectiveness of BPR implementations in EHEI's. The specific objectives of the study are to evaluate and examine the current status of BPR, identify major factors that affect BPR implementation at EHEI's, and evaluate the methodologies followed while implementing BPR at EHEI's.

The practice and effectiveness of BPR implementation at EHEI's is assessed with respect to:

? What was planned to be achieved through BPR?

? What is accomplished so far? Did BPR implementation bring improved performance? ? What are the key success or failure factors for BPR implementations? According to Porter (1990), the performance of higher education is very critical for the competitiveness of nations. Therefore, assessing BPR implementation and identifying the success factors at universities is highly significant. First, the impact of the different factors on the implementation of BPR was not adequately investigated empirically. Second, the paper investigates the issue from a public institution of a developing country, which most past literatures did not yet give enough attention. Thus, the paper will contribute to the body of knowledge of the existing literature and provide a decision support system for decision makers.

Existing literature, like Hall et al. (1993), Ascari et al. (1995), and Altman & Iles (1998), suggest that the assessment of BPR in organizations, also in EHEI's, would benefit more by investigating in depth the real experience of implemented BPR. In this study Mekelle and Aksum Universities are selected for detail analysis of the academic core business process.

As per Davenport & Short (1990) BPR is defined as the analysis and design of work flows and processes within and between organizations. Hammer & Champy (1993) have defined as the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance. Talwar (1993) has focused on the rethinking, streamlining of the business structure, processes, methods, management systems and external relationships through which value is created and delivered. Hammer & Champy (1993) stated that BPR is not about fixing anything, it means starting from scratch. Petrozzo & Stepper (1994) see BPR as harmonized redesign of processes, organizational structures, and supporting systems to achieve improvements. According to Lowenthal's (1994), the rethinking and redesign of operating processes and organizational structure is focused on core competencies to achieve dramatic progress in organizational performance. BPR can bring critical performance improvements, but its proper implementation is difficult and complex hence the success and failure factors should be critically assessed and evaluated.

2 a) BPR Implementations

As per **??**urey & Timothy (1993), the implementation stage is where reengineering efforts meet the most resistance and by far the most difficult stage. According to **??**bolensky & Nick (1994), it would indeed be sensible to run a culture change program simultaneously while analyzing, redesigning, and planning the migration. Moreover corporate culture, change management and government and organizational policies had significant roles in BPR acceptance in various organizations and countries, Huang & Palvia (2001) and Sheu et al. (2003).

3 b) Success Factors of BPR Implementations

According to Peppard & Fitzgerald (1997), ambitious objectives, creative teams, process based approach and integration of IT are among the main success factors. Ascari et al. (1995) had also added culture, processes, structure, and technology as success factors. According to Al-Mashari & Zairi (1999), the dimensions of the CSFs for BPR includes: change management, competency and support in management, information infrastructure, and project planning and management system. Since the CSFs may differ based on the type of organization, it is indispensable to understand the nature of organization.

As described by Hutton (1996), many factors including rigid hierarchy and culture, varied stakeholders, changes in policy direction, overlapping of initiatives, broad scope of activities, and above all the staff resistance are crucial parts of public sectors. As higher institutions naturally are gifted with the above factors more emphasis should be given for these factors to achieve the radical changes. Hutton **??**1996) suggested that human issues should be given more due for BPR to be performed in this sector.

4 Research Methodology

According to Hall et al. (1993), Ascari et al. (1995), Altman & Iles (1998), the assessment of BPR implementation in higher institutions (HIs) and other organizations, would give more benefit by investigating the real experience of implemented BPR. Therefore, in this study two EHEI's which had embarked on BPR are considered for detailed study.

These universities are selected based on accessibility for data collection, BPR implementation progress, representativeness of both the new and old universities and international recognitions. Mekelle University, which has about one thousand and three hundred academic staff members, is one of the fast growing universities and is among the first universities which had studied and implemented BPR in the academic core process (CC & M, 2009). Aksum University, with about four hundred and fifty academic staff members, is among the newly established universities and implementing BPR.

5 a) Target Population

In this study Mekelle Univerity, Mekelle, and Aksum University, Aksum are taken as cases and assessment was done only on the academic core process reengineering. As academic staff members are more involved in the academic core process, data are gathered from academic staff members of universities through questionnaire with questions rated from 1 to 5 Likert scale. A total population of one hundred and sixty, sum of academic staff members from the two universities is taken for the research.

6 b) Data Type and Collection

This study is descriptive study, taking the EHEI's as a case, it assessed the status of BPR implementation in detail and described various factors that would have significant impact on BPR implementations.

In order to achieve the stated objectives, primary data both quantitative and qualitative are used. Quantitative data is collected from academic staff members using self administered questionnaires. And the qualitative data is collected through interviews of officials and reengineering teams from the respective universities. Theoretical reviews, BPR reports, the strategic plan of the Ministry of Education and universities and other relevant BPR documents are used to collect further information related to BPR implementations in the higher institutions.

7 c) Sampling and Sampling Techniques

In this study, cluster sampling is applied to select the universities, academic core process and the academic staff members as population to be considered. Stratified sampling technique is also used to classify academic staff members in to sub groups based on their exposure, involvement to BPR implementation and related responsibilities. Based on these staff members with position of lecturer and above was consider as one group, graduate assistant-II and assistant lecturers as second, and technical assistant and graduate assistant-I as the third group.

The sample size is determined using the standard tables for sampling using the confidence level of 95% and 10% confidence interval. Based on the standard the sample size for a population of one thousand and three hundred for Mekelle University is ninety. And for Aksum University a population of four hundred and fifty the sample size needed is forty. To minimize the error a 25% percentage of the total population is added to each sample. The samples for both universities is summarize in Table1. In the data processing phase data editing, coding, entering, and cleaning have been made so as check the consistency and validity of data collected with different tools. In analyzing the data both quantitative and qualitative methods are used. Qualitative analysis is employed for the data collected through interviews. SPSS is used to make the quantitative analysis of data that has been collected through questionnaires. Simple descriptive statistics relative importance index (RII), are employed to summarize the data or to describe the relationship between the key parameters and implementation progress of BPR in the institutions. RII isN A W RII $\times \div = ?$

Where : W=total weight, A=highest value of the scaled used 5 (for 5-points Likert), N=number of active respondents III.

8 Result And Discussion

9 a) Research Strategy

According to Swanson & Holton (2005) survey studies are relevant when conducting research in organizations where the intent is to study systems, individuals, programs, and events. Yin (2003) stated that surveys are appropriate when an in-depth understanding of a phenomenon or process is required. The objective of the research is to examine if the BPR implementation in EHEI's is effective or not. The other objective of the study is to identify, and provide in-depth insights to the key success or failure factors that determine the success or failure of higher institution in their BPR implementation efforts. Both of these objectives require a detailed understanding of the institutions' processes and systems; hence the survey study is used for this research.

The primary data is collected using a structured questionnaire; the respondents are provided with a 1 to 5 Likert scale statements to select their extent of agreement to close ended questions. The questionnaires are intended to gather the respondents' opinion in the effectiveness of BPR implementation, and its current status in the higher institutions. Lastly, the respondents are requested to provide their extent of agreement or disagreement to a number of statements framed to identify BPR critical success or failure factors.

According to Swanson & Holton (2005) the purpose of data analysis is to search for important meanings, patterns, and themes in the researcher's area of study. The data collected from the questionnaires are coded using a scale of 1 to 5, where 1 is coded for strongly disagree, 2 for disagree, 3 for neutral, 4 for agree and 5 for strongly agree. According to Swanson & Holton (2005), coding breaks up and categorizes the data into more simplified categories. Once the data are coded and fed in to the SPSS worksheet it is analyzed and studied for patterns and actual performance of BPR implementation in the higher institutions. Simple descriptive statistics like measures of frequency, weighted mean, standard deviation, percentages and RII are used for analyzing the data.

10 b) Data Analysis, Results and Discussions

The study presents the findings on the effectiveness, and critical success and failure factors of BPR while implementing in the academic core business process of Mekelle and Aksum Universities. The data are analyzed in order to understand the key objective of the study, which is to evaluate and examine whether BPR implementation in higher institution is effective or not. In addition, the responses are analyzed for potential reasons for the success or failure of the BPR initiative against the key success or failure factors for implementing BPR.

11 c) Extent to Which Goals and Objectives are Communicated in BPR Plans

The respondents are asked to state their extent of agreement with different statements relating to the extent to which goals and objectives are communicated in BPR project plans before the implementation phase. Each of the questions is framed in a 5-point Likert scale ranging from not at all to highest extent. The data are then coded with a weight of 1 for not at all, 2 for smaller extent, 3 for moderate extent, 4 for higher extent and 5 for highest extent. The percentages, means and RII's of all responses for each question from both universities are shown in the following tables.

Table 2, shows the level of respondents' agreement in percentages. Accordingly, 34.9% agreed to a moderate, 27.9% to smaller extent. 22.3% the respondents rated the communication as higher level. While 8.7% of the respondents in Mekelle University believe that no goals and objective are communicated, only 6.5% deemed that it is communicated to the highest level. Generally, 71.55% of the total respondents in Mekelle University rated the communication of goals and objectives in the BPR plan to maximum of moderate extent.

Table 3, shows that 28.2% of the respondents agreed to moderate, 24.4% to smaller extent, 20.4% of the respondents generally seeing no goals and objectives, and 18.6 % to major extent. Only 8.4% of the respondents agreed to highest extent. In Aksum University, 71.2% of the total respondents rate the communication, of goals and objectives in the BPR plan from smaller to higher extent. According to Davenport (1993) & Jackson (1997), effective communication is considered a major key to successful BPR-related change efforts. It is needed throughout the change process at all levels and for all audiences even with those not involved directly in the re-engineering project. But this is not followed by both universities. Although there is a small variation in the percentages of respondent's agreement, majority of respondents from the universities, 73% from Aksum University and 71.55% from Mekelle University agreed that the goals and objectives are communicated below moderate level. Scale: 1=Not at all, 2=Smaller extent, 3=Moderate extent, 4=Higher extent, and 5=Highest extent. Source: Own survey, 2011.

From the responses in Table 4, the objectives to recruit qualified academic staff (RII=0.624), establish teaching learning quality assurance system (RII=0.59), ensuring quality of teaching-learning (RII=0.588), provide seamless services to students (RII=0.586), are communicated to a moderate extent. The plan or objective to provide state-of-the-art infrastructure was communicated smaller extent. A weighted mean of 2.5 and above is accepted level of significance for Likert means. Therefore, using the weighted mean of 2.89 and As it is shown in Table 5, the objectives to recruit qualified academic staff (RII=0.64), establish teaching learning quality assurance system (RII=0.632), provide seamless services to students (0.58), ensure quality of teaching-learning (RII=0.56) are

communicated to a moderate extent. The plan or objective to recruit competent students is communicated to minor extent. A weighted mean of 2.70 shows that the goals and objectives are communicated to a maximum of moderate extent.

Comparatively, the mean and RII values of the goals and objectives are higher at Mekelle University than at Aksum University. This implies that, though the goals and objectives are communicated below moderate extent, Mekelle University communicates better than Aksum University about the goals and objectives. Scale: 1=Not at all, 2=Smaller extent, 3=Moderate extent, 4=Higher extent, 5=Highest extent. Source: Own survey, 2011.

Table 7, indicates that 29.2% of the respondents agreed that the goals and objectives are accomplished to smaller extent, 25.2% to moderate extent, 14.6% to higher extent and 19.2% of the respondents deemed that the goals and objectives are not accomplished at all. Only 11.8% were in agreement that the accomplishment is to highest extent. Generally, 69% of the respondents believe that the accomplishment is from smaller to higher extent. As per the data on Table 8, goals and objectives are deemed by the respondents to have accomplished with an overall weighted mean of 2.72. That is, the goals and objectives are accomplished to a maximum of moderate extent. Establishment of teaching learning quality assurance system (RII=0.588), provision of improved services to students (RII=0.572), recruitment of qualified academic and support staff (RII=0.568), and regular assessment of educational needs of society (RII=0.54) are the top ranked responses. The respondents are in agreement that these goals and objectives were accomplished more or less to moderate extent. In addition to the mean value the standard deviations have very small differences and this implies that there is less variation on the understanding or assessment of respondents on the accomplishment status of the goals and objectives. As per the data on Table 9, goals and objectives were deemed by the respondents to have been accomplished with an overall weighted mean of 2.72. The accomplishment overall rate was to a moderate extent. Recruiting qualified academic staff (RII=0.64), establishing teaching learning quality assurance system (RII=0.636), providing seamless The respondents were in agreement that these goals and objectives are accomplished more than moderate extent.

Figure 1, shows that more or less there is direct relationship between the extent of accomplishment and the degree of communication of goals and objectives. That is the higher the extent of goals and objectives are communicated the higher will be the extent of accomplishment. In all the responses given the extent to which goals and objectives are accomplished is below the extent to which goals and objectives are included and communicated. From the weighted means, percentages, RII and the graphs, while Aksum University performance and accomplishment rate in eight of the goals and objectives is above the planned rate, Mekelle University accomplishment level is below the plan. In both cases the accomplishment rates are below moderate level.

According to Talwar (1993) & Hinterhuber (1995), effective communication between stakeholders inside and outside the organization is necessary to make BPR program effective, to ensure patience and understanding of the structural and cultural changes needed, as well as the organization's competitive situation. Therefore, organizations, implementing BPR should openly communicate about the radical change. But in these cases, the goals and objectives of BPR were not well communicated at the planning phase and consequently low accomplishment rates.

12 e) Important

Factors for Successful BPR Implementation in Education Higher Institutions

The respondents were asked to state their extent of agreement with thirty different statements related to important factors that determine the success of BPR implementations. Each of the questions was rated in a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The frequency and mean of all responses for each question is shown in Tables 9 and 10.

Figure 2, shows that the accomplishment is less than the plan in ensuring the quality of teaching-learning and regular assessment of educational needs of society. In all the other goals and objectives, the extent to which goals and objectives are accomplished is greater than the extent to which goals and objectives are communicated. As shown in Table 10, the success factors have been classified in to six major success categories viz., external factors, employee empowerment, operational factors, and communication, methods and tools, leadership. Some factors have effects on more than one category, thus they are included in more than one category. As shown in Table 10, the average weighted value of almost all the factors is above 3. Although the degree of importance is somewhat different, this implies that all respondents deemed that the factors are important for the success of BPR implementation in higher institutions. Looking the factors under external category using industry specialist and having the BPR motivated by customer demand on average are considered to be more important success factor than having BPR motivated by competitive pressure. In terms of operational factors, focusing on outcomes than on task, adequate job integration approach, creating supportive teaching learning environment, effectively utilization of resources, implementing continuous performance improvement are five top rated success factors. Similarly active involvement of staff members and empowering workers in decision making deemed to be more important than training and motivational factors. In the communication category use of progress evaluation to determine what is working and what is not, developing and communicating mission and vision statements, sharing and exchanging information are considered to be relatively important. Continuous

13 Rate

Question number

14 Mean-Included

Mean-Accomplish ed performance improvement, targeting critical processes first, adequate job integration approach, progress evaluation to determine what is working and what is not are rated high in the methods and tools category. Finally, targeting critical processes first, proper alignment of BPR strategy with the corporate strategy, regular revision of implementation procedures are consider important in the leadership of BPR implementation process. Generally, all the factors are rated by the respondents above 3. Based on the RII values on Table 10, continuous performance improvement, active involvement of staff members, progress evaluation, creating supportive teaching learning environment, developing and communicating the mission and vision statements, effective utilization of resources are top rated success factors in the implementation of BPR in higher education institutions.

Category wise, operational (RII=0.66), and methods and tools (RII=0.656) related factors have the highest RII values. This is in line with the theoretical frameworks. Continuous improvement, proper use of IT, proper utilization of resources and other factors under these categories are consider to basic requirements for the effective BPR implementations.

Table 11, outlines the success factors classified in to six majored mutually inclusive success categories same classification as Table 10. As it can be seen from Table 11, the average weighed value of all the factors is above 2 and below 4. That means all respondents deemed that the factors are important for the success of BPR implementation at Aksum University. Looking the factors under external category having BPR motivated by customer demands is considered to be most important success factor than having BPR motivated by competitive pressure and using industry specialist. In the operational related factors; effective utilization of resources, using technology as enabler, reducing cost by automation, focusing on outcomes than on task, implementing continuous performance improvement are among top rated success factors.

Similarly training of employees on what BPR and active involvement of staff members are deemed to be more important than empowering workers and motivational factors in the employee empowerment category. In the communication category sharing and exchanging of information, use of progress evaluation to determine what is working and what is not, developing and communicating mission and vision statements are considered to be relatively important. Outcome and group technology oriented, proper design and continuous performance improvement methods and tools are considered to be important success factors.

Finally, proper alignment of BPR strategy with the corporate strategy, targeting critical processes first, use of group technology and motivated and accountable top managers are consider to be relatively important in the leadership of BPR implementation process.

As can be seen from Tables 10 and 11, having BPR motivated by customer demands, effective utilization of resources, good information exchange and flow, continuous performance improvement, using technology as enabler not as solution, developing and communicating clear written goals and objectives, proper alignment of BPR strategy with the corporate strategy, using progress evaluation are the most important critical success factors at both universities. In addition to this, the weighted average and RII values show slight differences between the universities. Therefore, to have effective BPR implementations, the success factors should be analyzed and fitted to the organizations working condition and handled properly. The respondents are asked twenty five questions related to the expected output of BPR implementation, which can be used to evaluate the current status of BPR implementation at Mekelle University and Aksum University. The questions, weighted mean, RII and standard deviation are outlined in Tables 12 and 13.

From the responses in Table 12, most respondents rated the implementation status below 3 and the weighted mean is 2.64. Thus, the implementation of BPR at Mekelle University is at lower status. This is further supported by the detailed analysis of Annex-1, where over 75% of the respondents do not know or disagree with questions on the status of BPR implementation. Generally, more than 28% of the respondents are neutral to the status of the implementations. 25% disagree that BPR implementation was installed as per the recommendations of BPR. 21% of the respondents strongly disagree that BPR recommendations are being implemented and practiced. About 18% agree with the implementation, but only 6.5% of respondents rated implementation as very high. From the mean and percentage figures it can be concluded that BPR recommendations are not installed and practiced as expected at Mekelle University. Only two parameters (the practice of continuous assessment and giving summative examinations based on student convenience) are rated above 3. As it can be seen from Table 12, standard deviation for the assignment of students to departments is high; respondents have great differences on this issue.

From the responses shown in Table 13, most respondents from Aksum University rated the implementation status below 3 with a weighted mean of 2.44. This implies that implementation of BPR at Aksum University is at lower status. This is further supported by the detailed analysis of Annex-2; over 57% of the respondents disagree with questions on the status of BPR implementation. That is 36.96% of the respondents strongly disagree and 20.24% disagree that the implementation is as per the BPR recommendations. While 17.12% of the respondents are neutral to the status of the implementations, 14.16% of the respondents agree that BPR recommendations are being implemented and practiced, but only 11.52% of respondents rated implementation status very high. Both

the mean and percentage figures show that BPR recommendations are not installed and practiced as expected. Only five out of twenty five parameters (continuous assessment, remedial programs, student centered teaching learning processes and documentation) are rated above 3 at Aksum University. Scale: 1=Strongly disagree, 2=Disagree, 3 =Neutral, 4=Agree, and 5=Strongly agree. Source: Own survey, 2011.

Comparatively the implementation status is rated higher at Mekelle University than at Aksum University. But the overall performance of BPR in the institution is rated below 3. As it is discussed, from the communication and accomplishment of BPR section, communication about BPR in planning and implementation phases were poor and the goals and objectives are accomplished to maximum of moderate extent. Tables 11 and 12 are in line with these ideas. That is goals and objectives are not achieved to the desired level and the overall status of BPR implementation in the higher institutions is at lower status.

15 g) BPR Implementation Failure Factors

A list of thirty questions proposed in literature as potential BPR problems are provided to the respondents. They are asked to rate the extent that each problems would have a negative effect on BPR implementation in higher education institutions. The overall responses are summarized in Tables 14 and 15.

From Table 14, it can be seen that all the factors are ranked with mean above 2.5 and the overall. Thus the respondents deemed that all the factors are important problems in BPR implementation processes. While factors like unrealistic report that hides actual progress of implementation (RII=0.72), lack of management determination (RII=0.72), lack of employee training (RII=0.64) and lack of leadership to confront major business risks (RII=0.68) are among the top rated problems. Lower employee productivity (RII=0.54), high resistance to change (RII=0.54) and unfriendly working environment (RII=0.53) are at the lowest extreme. This can be further analyzed by classifying in to organizational environment, planning, operational, results, side effects and implementation cost related factors.

Based on the classification shown on Table 13, lack of leadership to confront major business risks, downsizing but keeping old organizational structure and lack of senior management enthusiasm are the most severe problems in organizational environment that facilitates the failure of BPR implementation. Lack of employee training to implement BPR, downsizing but keeping old organizational structure, conflict between traditional performance and BPR goals and top management reluctant to fund for BPR implantations are top rated problems in the BPR implementation planning. Operationally, on average, the most critical problems are long BPR implementation time, lack of training, incapability of IT to support BPR requirements and unrealistic report that hide actual progress of BPR implementation. Top management reluctant to fund for BPR implantations is the core cost related problem in implementation of BPR. BPR implementation projects seem to have many problems that could be considered as side effects. The most severe side effects that hinder the implementation of BPR in higher institutions are making business mistakes due to pressure to make quick results, lower employee morale, resignation of productive personnel and trying to change too much too quickly. Lastly, some BPR failure factors are basically lack of results. These include management frustration with slow business results, lower employee morale and lower employee productivity.

As shown in Table 15, all the factors are ranked with mean above 2.5 and above 0.5 RII values. Thus the respondents from Aksum University deemed that all the factors are critical problems in BPR implementation processes. Factors like lack of employee training (RII=0.888), unrealistic report to outsiders that hide actual progress (RII=0.812), management frustration with slow business results (RII=0.804), top management reluctant to fund (RII=0.784), disruptive in its nature (RII=0.78) are among the top rated problems. On the other hand employee high resistance to change (RII=0.616), employee working culture (RII=0.604), downsizing but keeping old organizational structure (RII=0.604) and lower employee productivity (RII=0.544) are at the lowest extreme.

The critical failure factors can be further analyzed by classifying them in to organizational environment, planning, operational, results, side effects and implementation cost related factors as shown in Table 15. Some factors have effects on more categories and they are included in more than one category. Unrealistic report to outsiders that hide actual progress, lack of leadership to confront major business risks, lack of management determination, employees' attitude, inconvenient working management are the most severe problems in organizational environment that facilitates the failure of BPR implementation. Lack of employee training to implement BPR, top management reluctant to fund for BPR implantations, lack best technology, inability of IT to support BPR requirements and conflict between traditional performance and BPR goals are top rated problems in the BPR implementation planning.

Operationally, on average, the most critical problems are unrealistic reports that hide actual progress of BPR implementation, disruptive out puts of BPR and incapability of IT to support BPR requirements. Top management reluctant to fund for BPR implantations is the core cost related problem in implementation of BPR. BPR has many side effects. The most severe side effects that hinder the implementation of BPR in higher institutions are unfriendly working environment, resignation of productive personnel, trying to change too much too quickly. Lastly, some BPR failure factors are basically lack of results. These include management frustration with slow business results, lower employee morale and lower employee productivity.

Considering the mean and RII values of Tables 14 and 15, lack of employee training, unrealistic report to outsiders that hide actual progress of BPR implementation, management frustration with slow business results, lack of management determination when problem comes, top management reluctance to fund BPR implantations,

employees' negative attitude, lack of top managers enthusiasm, lack of IT to support BPR requirements are the top ranked obstacles to BPR implementation in the higher institutions.

Higher institutions should critically evaluate the failure factors and implement the BPR properly to minimize the failure rate of the BPR projects. As described above the problems are more of on human related problems like lack of training, hiding actual progress, management frustration and the like. Therefore, to be effective on BPR implementations organizations should invest on their human and human related capital. IV.

16 Questions

17 Conclusion

Although the desired and stretched goals and objectives of BPR are clearly written and documented at the universities, these goals and objectives were not well communicated and set in to the staff members mind and attention. Consequently, the institutions are unable to manage and accomplish the goals and objectives to Side effects: Having poor accomplishment rate of the goals and objectives, the current status of BPR is rated by the respondents to be below the moderate extent (below 3 in the Likert scale) in both the universities. This implies effectiveness of BPR implementation is below average and the institutions are not gaining the competitive advantages expected from the radical change.

In this research on average, having BPR motivated by customer demands, effective utilization of resources, good information exchange and flow, continuous performance improvement, using technology as enabler not as solution, developing and communicating clear written goals and objectives, proper alignment of BPR strategy with the corporate strategy, using progress evaluation are rated as the most critical success factors. Lack of employee training, unrealistic report to outsiders that hide actual progress of BPR implementation, management frustration with slow business results, lack of top management determination, top management reluctance to fund BPR implantations, employees' negative attitude, lack of top managers enthusiasm, lack of IT to support BPR requirements are the top ranked obstacles to BPR implementation in the EHEI's.

V.

18 Recommendations

Higher education institutions and also other organizations undertaking, or planning to undertake BPR efforts should consider critically the success factors, tackle the BPR related problems and evaluate all these factors against their organizational working environments to ensure that their BPR-related changes are comprehensive, well-implemented, and with minimum chance of failures.

Based on the findings of the study, organizations should not rash to implement the radical changes as BPR, if not handled properly, can lead to competitive disadvantages. In order to undertake BPR, the most important factor to ensure success is to analyze the current situation to identify goals, objectives and possible strategies. These goals, objectives and strategies should be openly and well communicated to the stakeholders. If there is a good case to undertake the changes, the stakeholders (top management and employees) must support the change and drive it through to success. All critical success factors must be taken care of and minimize all factors that lead to failure of the BPR initiatives.

As BPR requires continuous improvement, progress measurement and performance evaluation of outputs against the objectives and customer (internal and external) satisfaction, which is lacking point in most of the education institutions now, should be continuously monitored.

This study is focused on the assessment of effectiveness of BPR implementation in the academic core process and identifies the success and failure factors related to the academic in the EHEI's. Further study on the

Figure 1:

1

Name of university	Number of academic staff members (on duty)	Sample size from respective university
Mekelle University	1300	110
Aksum University	450	50
Total	1750	160

d) Data Processing and Analysis Method

Figure 2: Table 1 :

2

Questions

Figure 3: Table 2 :

3

Questions		Responses				To
		Not at all	Smaller extent	Moderate extent	Higher extent	Highes extent
Ensure quality of teaching-learning	Frequency Percent	8 16	8 16	22 44	10 20	110 100
	Cum. percent 16		32	76	96	
Assess educational needs of society regularly	Frequency Percent Cum. percent 22 11 22		12 24 46	11 22 68	11 22 90	110 100
Satisfy educational needs of society	Frequency Percent	3 6	22 44	14 28	8 16	110 100
	Cum. percent 6		50	78	94	
Ensure international recognition of academic programs	Frequency Percent	14 28	18 36	10 20	3 6	110 100
	Cum. percent 28		64	84	90	
Recruit competent students	Frequency Percent	18 36	19 38	8 16	5 10	110 100
	Cum. percent 36		74	90	100	
Provide seamless services to students	Frequency Percent	7 14	7 14	20 40	16 32	110 100
	Cum. percent 14		28	68	100	
Recruit qualified academic staff	Frequency Percent	6 12	4 8	22 44	10 20	110 100
	Cum. percent 12		20	64	84	
Provide state-of-the -art infrastructure	Frequency Percent	17 34	4 8	21 42	5 10	110 100
	Cum. percent 34		42	84	94	
Establish teaching learning quality assurance system	Frequency Percent	7 14	14 28	3 6	16 32	110 100
	Cum. percent 14		42	48	80	
Recruit qualified support staff	Frequency Percent	11 22	14 28	10 20	9 18	110 100
	Cum. percent 22		50	70	88	
	Overall percent 20.4 24.4			28.2	18.6	8.4 100
Overall cumulative (Cum.) percent 20.4 44.8				73	91.6	

Figure 4: Table 3 :

Figure 5:

4

Q.No.	Questions	Mean	Std. Dev.	RII
Q1	Ensure quality of teaching-learning	2.94	1.05	0.588
Q2	Assess educational needs of society regularly	2.89	0.97	0.578
Q3	Satisfy educational needs of society	2.84	1.02	0.568
Q4	Ensure international recognition of academic programs	2.85	0.95	0.57
Q5	Recruit competent students	2.85	1.12	0.57
Q6	Provide seamless services to students	2.93	1.05	0.586
Q7	Recruit qualified academic staff	3.12	1.01	0.624
Q8	Provide state-of-the-art infrastructure	2.65	1.07	0.53
Q9	Establish teaching learning quality assurance system	2.95	1.14	0.59
Q10	Recruit qualified support staff	2.9	1.02	0.58
	Weighted mean 2.89			0.53

[Note: Scale: 1=Not at all, 2=Smaller extent, 3=Moderate extent, 4=Higher extent, and 5=Highest extent. Source: Own survey, 2011.]

Figure 6: Table 4 :

5

Q.No.	Questions	Mean	Std. Dev.	RII
Q1	Ensure quality of teaching-learning	2.8	1.07	0.56
Q2	Assess educational needs of society regularly	2.74	1.31	0.548
Q3	Satisfy educational needs of society	2.72	1.01	0.544
Q4	Ensure international recognition of academic programs	2.34	1.24	0.468
Q5	Recruit competent students	2	0.97	0.4
Q6	Provide seamless services to students	2.9	1.02	0.58
Q7	Recruit qualified academic staff	3.2	1.18	0.64
Q8	Provide state-of-the-art infrastructure	2.46	1.23	0.492
Q9	Establish teaching learning quality assurance system	3.16	1.4	0.632
Q10	Recruit qualified support staff	2.7	1.33	0.54
Weighted mean		2.70		0.54

Figure 7: Table 5 :

6

Figure 8: Table 6 ,

6

Questions

Figure 9: Table 6 :

7

Questions

Figure 10: Table 7 :

8

Q.No.	Questions	Mean	Std. Dev.	RII
Q1	Ensure quality of teaching-learning	2.64	1.12	0.528
Q2	Assess educational needs of society regularly	2.7	1.06	0.54
Q3	Satisfy educational needs of society	2.58	1	0.516
Q4	Ensure international recognition of academic programs	2.63	0.98	0.526
Q5	Recruit competent students	2.65	0.99	0.53
Q6	Provide seamless services to students	2.86	1.02	0.572
Q7	Recruit qualified academic staff	2.84	1.07	0.568
Q8	Provide state-of-the-art infrastructure	2.6	1.01	0.52
Q9	Establish teaching learning quality assurance system	2.94	1.14	0.588
Q10	Recruit qualified support staff	2.7	0.94	0.54
	Weighted mean 2.72		0.544	

Scale: 1=Not at all, 2=Smaller extent, 3=Moderate extent, 4=Higher extent, and 5=Highest extent.
Source: Own survey, 2011.

Figure 11: Table 8 :

9

Q.No.	Questions	Mean	Std. Dev.	RII
Q1	Ensure quality of teaching-learning	2.28	1.26	0.456
Q2	Assess educational needs of society regularly	2.54	1.15	0.508
Q3	Satisfy educational needs of society	2.78	1.09	0.556
Q4	Ensure international recognition of academic programs	2.26	1.38	0.452
Q5	Recruit competent students	2.3	1.16	0.46
Q6	Provide seamless services to students	3.12	1.15	0.624
Q7	Recruit qualified academic staff	3.2	1.28	0.64
Q8	Provide state-of-the-art infrastructure	2.66	1.29	0.532
Q9	Establish teaching learning quality assurance system	3.18	1.27	0.636
Q10	Recruit qualified support staff	2.84	1.31	0.568
	Weighted mean 2.72		0.544	

Scale: 1=Not at all, 2=Smaller extent, 3=Moderate extent, 4=Higher extent, and 5=Highest extent.
Source: Own survey, 2011.
services to students (RII=0.624), recruiting qualified support staff (RII=0.568) are the top ranked responses.

Figure 12: Table 9 :

10

Factors

[Note: Scale: 1=Strongly disagree, 2=Disagree. 3 =Neutral, 4=Agree, and 5=Strongly agree. Source: Own survey, 2011.]

Figure 13: Table 10 :

11

Factors

[Note: f) Current Status of the BPR Implementation]

Figure 14: Table 11 :

12

Questions

Figure 15: Table 12 :

13

Questions

Figure 16: Table 13 :

assessment of the other core process and Annex-1 : Status of BPR at Mekelle University. [1] [2] [3] [4] [5] [6] [7] [8] [9] [10]

[1]Global Journal of Management and Business Research Volume XII Issue XI Version I

[2]© 2012 Global Journals Inc. (US) July (1998), managers' arrogant behavior, rigid resistance, given in terms of weight, number of respondents and scale level as follows.

[3]© 2012 Global Journals Inc. (US) July

[4]2012 July © Global Journals Inc. (US) © 2012 Global Journals Inc. (US)

[5]Global Journal of Management and Business Research Volume XII Issue XI Version I 2012 © 2012 Global Journals Inc. (US) July Scale: 1=Not at all, 2=Smaller extent, 3=Moderate extent, 4=Higher extent, and 5=Highest extent. Source: Own survey, 2011. d) The Extent to Which BPR Goals and Objectives are AccomplishedThe same questions used for rating the extent to which goals and objectives are communicated as in the project plan of BPR are used for respondents to rate the extent to which these goals and objectives are actually accomplished. The responses are summarized in Tables6 to 9. Analyzing the detailed responses from

[6]© 2012 Global Journals Inc. (US)JulyScale: 1=Not at all, 2=Smaller extent, 3=Moderate extent, 4=Higher extent, 5=Highest extent. Source: Own survey, 2011.

[7]Global Journal of Management and Business Research Volume XII Issue XI Version I 2012 © 2012 Global Journals Inc. (US) July

[8]July

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[10]July

14

Mean Std. Dev. RII

Figure 17: Table 14 :

15

Questions

Figure 18: Table 15 :

Annex-2 : Continued.

Items	Items	Items
Efforts are made to raise staff commitment to implement BPR	Summative examinations are based on Academic staffs devote 25% their time	student convenience on researches and community services recommendations
Frequency	Frequency	Percent
Percent	Percent	Cum. percent
Cum. percent	Cum. percent	
There is online grade submission system	Academic staffs devote 25% their time	Academic staffs devote 75% their time on researches and community
Frequency	Frequency	Percent
Percent	Percent	Cum. percent
Cum. percent	Cum. percent	

on academics researches and community services

Efforts are made to assess training needs	Academic staffs devote 75% their time	Flat organizational structur
Frequency	Frequency	
Percent	Percent	
Cum. percent	Cum. percent	

There is 24hrs a day and 7days a week information access to students Flat organizational structure develope

		Cum. percent
		Cum. percent
		Cum. percent

Students are assigned to departments based on their interest	All academic recruitment are made	Frequency

Cum.

Annex-2 : Status of BPR at Aksum University.

[Business Process Management Journal] , *Business Process Management Journal* 7 (3) p. .

[Management Science] , *Management Science* 36 (7) p. .

[Zirger and Maidique ()] *A model of new product development: An empirical test*, B Zirger , A M Maidique . 1990.

[Furey ()] 'A six step guide to process reengineering'. T R Furey . *Planning Review* 1993. 21 (2) p. .

[Ahmad and Spicer ()] 'A study of the cognitive processing models used in the appraisal system: The Malaysian public service'. R Ahmad , D Spicer . *ASIAN Academy of Management Journal* 2002. 7 (2) p. .

[Ranganathan and Dhaliwal ()] 'A survey of business process reengineering practices in Singapore'. C Ranganathan , J S Dhaliwal . *Information and Management* 2001. 39 (2) p. .

[Ahadi ()] 'An examination of the role of organizational enablers in business process reengineering and the impact of information technology'. H R Ahadi . *Information Resource Management Journal* 2004. 17 (4) p. .

[Abdolvand et al. ()] 'Assessing readiness for business process reengineering'. N Abdolvand , A Albadvi , Z Ferdowsi . *Business Process Management Journal* 2008. 14 (4) p. .

[Kinfe ()] *Basic statistics a text book for quantitative methods*, A G Kinfe . 2002. Mekelle: Mega Printing Press. p. .

[Zinser et al. ()] 'Best practice in reengineering: A successful example of the porsche research and development center'. S Zinser , A Baumgartner , F Walliser . *Journal of Business Process Management* 1998. 4 (2) p. .

[Al-Mashari and Zairi ()] 'BPR implementation process: an analysis of key success and failure factors'. M Al-Mashari , M Zairi . *Business Process Management Journal* 1999. 5 (1) p. .

[Smith ()] 'Business process design: Correlates of success and failure'. M Smith . *The Quality Management Journal* 2003. 10 (2) p. .

[Siha and Saad ()] 'Business process improvement: Empirical assessment and extensions'. S M Siha , G H Saad . *Business Process Management Journal* 2008. 14 (6) p. .

[Hinterhuber ()] 'Business process management: the European approach'. H Hinterhuber . *Business Change and Re-engineering* 1995. 2 (4) p. .

[Remenyi and Heafield ()] 'Business process re-engineering: Some aspects of how to evaluate and manage the risk exposure'. D Remenyi , A Heafield . *International Journal of Project Management* 1996. 14 (6) p. .

[Girmay et al. ()] *Business process reengineering: Academic core process reengineering business case*, T Girmay , Y Ftwi , M Geberekidan , M Gebremariam , A Haimanot , K Weldegebriel . 2008. Mekelle, Ethiopia. Mekelle University

[Talwar ()] 'Business re-engineering a strategy-driven approach'. R Talwar . *Long Range Planning* 1993. 26 (6) p. .

[Yin ()] 'Case study research: Design and methods'. R Yin . *Applied Social Research Methods Series* 2003. (5) . (3rd Edition)

[Martinsons and Hempel ()] 'Chinese business process re-engineering'. M G Martinsons , P S Hempel . *International Journal of Information Management* 1998. 18 (6) p. .

[Cheng et al. ()] 'Construction management process reengineering: Organizational human resource planning for multiple projects'. M Y Cheng , M H Tsai , Z X Xiao . *Automation in Construction* 2006. 15 (3) p. .

[Huang and Palvia ()] *ERP implementation issues in advanced and developing countries*, Z Huang , P Palvia . 2001.

[Martinsons ()] 'ERP in China: One package, two profiles'. M G Martinsons . *Communications of the ACM* 2004. 47 (7) p. .

[Hall et al. ()] 'How to make reengineering really work'. G Hall , J Rosenthal , J Wade . *Harvard Business Review* 1993. 71 (6) p. .

[Adeyemi and Aremu ()] 'Impact assessment of business process reengineering on organizational performance'. S Adeyemi , M A Aremu . *European Journal of Social Sciences* 2008. 7 (1) p. .

[Singh and Kant ()] 'Knowledge management barriers: An interpretive structural modeling approach'. M D Singh , R Kant . *International Journal of Management Science and Engineering Management* 2008. 3 (2) p. .

[Altman and Iles ()] 'Learning, leadership, teams: Corporate learning and organizational change'. Y Altman , P Iles . *Journal of Management Development* 1998. 17 (1) p. .

[Pearce and Robinson ()] J A Pearce , R B Robinson . *Strategic planning forecasting tools and techniques. 6th Edition*, (Irwin, Chicago, IL) 1997.

[Obolensky ()] *Practical business reengineering*, N Obolensky . 1994. Houston: Gulf Publishing Company.

[Cc M (2009)] *Proceeding on BPR training to academic and administrative staff of Mekelle University*, Cc & M . 2009. February 24-28, 4-25. Mekelle, Ethiopia.

[Love and Gunasekaran ()] 'Process reengineering: A review of enablers'. P E Love , A Gunasekaran . *International Journal of Production Economics* 1997. 50 (2/3) p. .

[Mcadam ()] 'Radical change: A conceptual model for research agendas'. R Mcadam . *Leadership and Organization Development Journal* 2003. 24 (4) p. .

[Ascari et al. ()] 'Reengineering and organizational change: lessons from a comparative analysis of company experience'. A Ascari , M Rock , S Dutta . *European Management Journal* 1995. 13 (1) p. .

[Hammer and Champy ()] *Reengineering the corporation: A manifesto for business revolution*, M Hammer , J A Champy . 1993. New York: Harper Business Books. (1st Edition)

[Lowenthal ()] *Reengineering the organization: A step-by-step approach to corporate revitalization*, J N Lowenthal . 1994. Milwaukee, USA: ASQC Quality Press.

[Hammer ()] 'Reengineering work: Don't automate obliterate'. M Hammer . *Harvard Business Review* 1990. 4 (2) p. .

[Swanson and Holton ()] *Research in organizations: Foundations and methods of inquiry*, R Swanson , E Holton . 2005. Berrett-Koehler Publishers.

[Petrozzo and Stepper ()] *Successful reengineering*, D P Petrozzo , J C Stepper . 1994. New York: Van Nostrand Reinhold.

[Porter ()] *The competitive advantage of nations*, M E Porter . 1990. New York: Macmillan.

[Sheu et al. ()] 'The effect of national differences on multinational ERP implementation: an exploratory study'. C Sheu , H Yen , D W Krumwiede . *TQM and Business Excellence* 2003. 14 (6) p. .

[Martin ()] *The Great Transition: Using the seven disciplines of enterprise engineering to align people, technology, and strategy*, J Martin . 1995. New York: American Management Association.

[Peppard and Fitzgerald ()] 'The transfer of culturally-grounded management techniques: The case of business process reengineering in Germany'. J Peppard , D Fitzgerald . *European Management Journal* 1997. 15 (4) p. .