Prospects and Challenges to Implement Business Process Reengineering (BPR) in Ethiopian Public Universities

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Declaration

I, the undersigned graduate student, hereby declare that this thesis is my original work, and it has not been presented for a degree in any other university and all sources of the materials used for this thesis have been duly acknowledged.

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Abstract

Since educational institutions function similar to other types of business organization, they can use Business Process Reengineering (BPR) to enhance their performances in terms of reducing processes' cost and cycle time, increasing service quality, and increasing customers and employees satisfactions. Likewise, starting from 2008 and 2009, all Ethiopian public universities engaged in BPR project to enhance their performances dramatically. However, the implementation phase of BPR pointed as the most challenging one. Thus, this study intended to identify factors that deemed as challenging factors of BPR implementation.

To address study's objectives, sequential explanatory strategy of mixed methods research design adopted. Specifically, in the first phase of the study, survey was conducted on four public universities. To identify various challenging factors of BPR implementation, forty BPR project redesign and implementation team members in the universities were subjects of the study. In the second phase, after results obtained in the first phase, interviews were held with three interviewees to better understand the magnitudes of challenging factors. The study statistically analyzed the data obtained in the first phase. Then, results obtained in the first phase elicited to get qualitative data and thematically analyzed the qualitative data obtained in the second phase.

Results of this mixed method research design in the first phase shows that between 11 to 40 percent of the redesigned processes implemented at universities and to implement the entire processes, the implementation phase believed to take more than three years. Results also identified universities' support processes (administrative) as challenging to implement compare to core processes (academic). Besides, out of the thirty challenging factors included in the survey instrument, more than 50 percent of respondents showed a higher degree of agreement to seventeen factors as the most challenging factors that impeded redesigned processes from being implemented. However, results in the second phase shows that, of the seventeen factors, the magnitudes of nine factors to delay the implementation phase were severe. These include problems originated from change-management factors, top management support factors, organizational factors, and country factors. Generally, this study suggests to take corrective measures by the universities' management body and Ethiopian Ministry of Education before the project completely fail.

Keywords: BPR implementation; Challenging factors; Ethiopian public universities

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Acronyms

BPR	Business Processes Reengineering
BPRPMF	BPR Project Management Factors
CF	Country Factors
CMF	Change-Management Factors
GAO	General Accounting Office of United State of America
IT	Information Technology
ITF	Information Technology Factors
MoE	Ethiopian Ministry of Education
MOTI	Ethiopian Ministry of Trade and Industry
OF	Organizational Factors
TMSF	Top Management Support Factors
TQM	Total Quality Management
UK	United Kingdom
USA	United State of America

Chapter 1: Introduction

This thesis studies Business Process Reengineering (BPR) implementation in Ethiopian public universities. Specifically, it tries to study factors related to BPR implementation in Ethiopian public universities. Hence, BPR is one of the management tools that can help the organization for effective, efficient and economic performance through dramatic and radical redesign of old business processes. As well, it can help to contribute benefits to external stakeholders of the organization. Thus, studies on BPR have immense value to both practitioners and academicians.

The aim of this chapter is to provide background information on the thesis. The remaining sections of this chapter organized as follows. The first section presents study's background, in which it deals about Ethiopian public universities and it gives general induction about the thesis. The second section presents the statement of problem. Next, objective of the study presented in third section. Then, research questions of the study provided in section four. Finally, the structure of the thesis presented in section five.

1.1 Background of the study

Higher education is a center of knowledge and skill transformation and creation. As such, higher education is crucial for the production of vital human resources with different disciplines. In addition, it provides vital roles for the society through community services and job creations. On top of these, Teshome (2005) concluded that higher education as critical for economic progress, political stability and peace, as well as building democratic culture and cohesive societies in the country.

According to Nuffic (2011), the Ethiopian government recognizes the importance of education for national development, which aimed at expanding the education sector, improving quality and ensuring educational content to be harmonized with the country's economic needs. Thus, in order to accommodate the increased needs of educational development, the government gives attention on the inauguration of new universities and expansion of existing universities' infrastructures. The number of public universities in Ethiopia reached twenty-two by end 2007/08 (National Bank of Ethiopia (NBE), 2009);

and now a day 10 public universities planned to be opened soon. At the same time, the number of students in each university has doubled and expected to double again (Kate, 2010).

Although Ethiopia's public universities number and their intake capacity increased rapidly, universities' way of doing businesses criticized being as old-fashioned processes that are scattered in pieces of tasks among various unites of the university. That in turn resulted to dissatisfy both the customers and service providers. Above all, those old-fashioned work practices lack to enhance the Ethiopian public universities for effective, efficient and economic performances. Accordingly, the former Ethiopian Ministry of Capacity Building tried to introduce transformation in Ethiopia in the ways in which works have to be done by all government organization through BPR. Thus, under the delegation of Ministry of Education (MoE), Ethiopian public universities engaged in BPR project starting from 2008 and 2009.

To carry out BPR project at universities, each university had identified processes and assigned redesign team members. Eventually, all university had finished the redesign phase of BPR before the end of 2009 and assigned implementation team members to commence the implementation phase. However, all universities not yet entirely implemented the redesigned processes. In this regard, Linden (1998) noted that the biggest disappointment of organizations' on BPR is implementation or more specifically, lack of implementation. Likewise, Hammer and Champy (1993) estimate indicated that 50% to 70% of BPR initiatives failed to achieve their objectives.

Studies on the key success and failure factors of BPR implementation attempted to identify different sets of factors (Grover et al., 1995; Attaran and Wood, 1999; Allen and Fifield, 1999; Al-Mashari and Zairi, 1999; Ahmad et al., 2007). These factors include change management, management competency and support, organizational culture, project planning and management, information technology (IT) infrastructure and financial resources. Besides, Attaran (2000) attempted to identify barriers to successful implementation of BPR; however, the author claimed that the difference between success

and failure did not depend on company size or resources, but on appropriate planning and avoidance of pitfalls.

The factors identified by various authors are almost similar, except some researchers like Allen and Fifield (1999) and Terziovskia et al. (2002) depart on the IT factor. Although the introduction of BPR in Ethiopia is a recent phenomenon, to the researcher's knowledge, there was no study that identified the specific factors that affect BPR implementation and their magnitudes. Specifically, BPR implementation challenges faced by Ethiopian public universities highlight the importance of paying attention to implementation and a need to study.

Therefore, this study could have implications to take corrective actions before BPR project of public universities completely fail. As well as, the study attempted to contribute to the literature body by studying the issue through a mixed method research design.

1.2 Statement of the problem

As Reyes (2001) claimed, multiple layers of management, centralized and expensive systems as well as the accumulation of control procedures and regulations remain to be formidable obstacles in ensuring efficiency, economy and productivity of public sector organizations. Likewise, the traditional working practices of Ethiopian public organizations criticized as being fragmented across various units of the organization and each unit focused only on one task that leads to frustrate the customers from ups and downs to get services from various units' handoffs. Supporting this, Getaneh (2009) reported that Ethiopian institutions criticized for their poor service delivery systems. Thus, in this ever changing and competitive environment the traditional working practices of Ethiopian public organization are not efficient, effective and economical.

To alleviate like the above-mentioned working practices, recently, the former Ethiopian Ministry of Capacity Building tried to introduce transformation in Ethiopia in which works have to be done by all governmental organization through BPR. Accordingly,

under the delegation of MoE, Ethiopian public universities engaged with BPR project to drastically change the traditional working practices.

To undertake BPR initiatives, all public universities have identified their problems. For instance, Addis Ababa University (2009) BPR initiative report stated that the university losing its grip on a clear sense of direction and performing below all expectations and its full potential. In addition, Mekelle University (2008) BPR report stated that the university faced many problems due to limitation in its current organization setup and systems of operation. Having these, before the end of 2009 all Ethiopian public universities finished the redesigning phase of BPR and arranged implementation team to commence the implementation phase.

However, all universities not yet fully implemented the redesigned processes. Supporting this, Debela and Hagos (2011) claimed the existence of BPR implementation pace variation in Ethiopian higher education. Although in BPR principles all of the redesigned processes shall not be implemented once rather piloted approach, at least some selected redesigned processes have to be piloted and implemented. Otherwise, the rate of failure increased as time passed. Thus, lack of implementation implied that universities' BPR project faced challenges to implement and its intended objectives remained on shelf. In this regard, Allen and Fifield (1999) and United States General Accounting Office (1997) noted that implementing BPR project is far from straightforward activities. In addition to the challenges, Attaran and Wood (1999) noted BPR as still an unfulfilled promise for many organizations despite all the energy, money and efforts spent by organizations trying to make their BPR efforts successful. In general, although all public universities of Ethiopia had undertaken BPR project, issues to implement the redesigned processes turn out as the major concerns of them.

According to Debela and Hagos (2011), BPR implementation in Ethiopian public organizations accompanied by doubt, skepticism, and fear of losing the status quo. With respect to Ethiopian public universities, BPR implementation challenges traced to various factors that were identified by different authors (Grover et al., 1995; Attaran and Wood,

1999; Allen and Fifield, 1999; Al-Mashari and Zairi, 1999; Ahmad et al., 2007), such as change management, management competency and support, organizational culture, project planning and management, IT and financial resources. However, the specific challenging factors that faced public universities of Ethiopia to implement BPR and magnitudes of various factors on the implementation phase of BPR not addressed on prior studies. Therefore, this study attempted to identify the factors that affect BPR implementation and their magnitude in case of Ethiopian public universities.

1.3 Objective of the study

The broad objective of the thesis was to study BPR implementation factors using mixed method research. In the first phase of research method adopted, quantitative survey research questions identified challenging factors of BPR implementation from respondents who were BPR redesign and implementation team members of the universities. Information from this quantitative phase used further in second qualitative phase. In the second phase of research method adopted, qualitative interview research questions used to understand the magnitude of identified factors from interviewees of Ministry of Education who are responsible for the higher education affairs and Ex-Vice President of ABC (anonymous) University. Specifically, the objectives of this study were:

- to identify challenging factors of BPR implementation in Ethiopian public universities and
- to better understand the magnitude of the identified factors.

1.4 Research questions

As per Grover et al. (1995) view, process change is complex and not easily accomplished, involving the manipulation of interactive relationships among organizational subcomponents such as management, people, structure, technology, and rewards. This view highlights the interaction of various factors might impede BPR implementation in the organization.

Therefore, to achieve the intended objectives of the study and to address the research problem, the following research questions developed:

RQ1. What are the challenging factors that public universities faced to implement BPR?

RQ2. How do those factors affect BPR implementation in public universities?

RQ3. What is the magnitude of each factor?

RQ4. Why public universities faced challenges to implement BPR?

Factors that affect BPR implementation varied from organization to organization. The characters and magnitudes of various factors also varied among organizations. Thus, the following sub research question developed to research question 1:

SRQ1. What are the challenging factors that affect BPR implementation at elder universities and new universities?

1.5 Structure of the thesis

The overarching theme of the thesis focused on BPR implementation to identify challenging factors that impeded the implementation of redesigned processes in Ethiopian public universities. The study report structured as follows. Chapter 2 presents literature review with respect to the theoretical perspective of BPR and empirical studies on BPR. Chapter 3 provides the research design part of the study, in which it encumbrances the main principles of research methodology and the adopted research design for the study. Chapter 4 presents both the quantitative and qualitative features of mixed method results and analysis of findings. Finally, chapter 5 presents study's conclusions part that encompasses summaries of major findings, conclusions, implications, and significance and delimitation of the study.

Chapter 2: Literature review

Today, globalization along with key driving forces such as customers behavior, competition among businesses and change in the working environment have created tough environment for organizations that have been working with outdated philosophies and principles of work practices. Although those outdated philosophies and principles succeed to cope up the socio-economic challenges of that time, they cannot fit today's new environment. The new environment requires organizations to realize new working practices that can make up them to be responsive and flexible for the changing environment. In doing so, organizations utilize various types of management tools such as Total Quality Management (TQM), Restructuring, Business Process Reengineering (BPR), and so on.

In light of the above induction, the aim of this chapter is to review literature on BPR and factors related to BPR implementation. Accordingly, the review of literature helped to highlight previous studies on BPR implementation with their underling concepts. These in turn, helped to highlight gap in the literature and forward a general research question for the study. In addition, it helped to develop survey instrument for the first phase of research method adopted in this thesis.

The review part has four sections. The first section presents reviews regarding to the theoretical perspectives of BPR, then, section 2 presents prior empirical studies on BPR implementation. Section 3 presents conclusions and gap in literature. Finally, definition of terms presented in section 4.

2.1. Business Process Reengineering (BPR): theoretical perspectives

As indicated previously, BPR is one of the management tool undertaken by organizations to respond to the changing environment. BPR is about beginning a new from scratch, i.e., starting over entirely by considering how activities in the organization put together. Thus, it entails the fundamental and radical redesign of the old/traditional business processes for the pursuit of new direction and perspective of the organization. As Grover et al. (1995) indicated, the impetus for this change comes both reactively to competitive

pressures and proactively to improve corporate responsiveness. Generally, Motwani et al. (1998) noted that BPR hailed as one of the current major drivers of change within organizations in order to survive in the changing environment of today.

The term 'Business Process Reengineering' was first introduced by Hammer (1990) and Davenport and Short (1990), and it thriving as a popular management tool for the past two decades. Supporting this, O'Neill and Sohal (1999) claimed Hammer (1990) and Davenport and Short (1990) as pioneers for BPR concept development during 1990. In connection with its introduction, as Tanoglu (2004) noted, during the beginning of 1990s, with globalization and extraordinary pace of development in the information technology (IT) area, three driving forces (customers, competition and change) resulted BPR.

Following the introduction of BPR by Hammer (1990) and Davenport and Short (1990), various authors called BPR as process innovation, business process redesign, business reengineering, or process reengineering (Revenaugh, 1994). Because of these nomenclature variations, Tanoglu (2004) claimed Hammer and Champy (1993) BPR definition as a widely accepted. As Hammer and Champy (1993) defined BPR:

> *"...is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed."*

According to the Hammer and Champy (1993), the above definition comprises four keywords: *fundamental*, *radical*, *dramatic* and *process*. These four keywords of BPR implied that before redesigning the process understanding the '*fundamental*' business operation is necessary, while it ignores the underlying rules and assumptions of the old/traditional business processes to '*radically*' redesign the process for '*dramatic*' performance of business '*process*' that can be measured in terms of speed, cost and quality.

Having this insight, BPR has its own methodology and principles that encompasses starting from determining whether the organization engage with BPR or not to the final

implementation of redesigned processes and further revisions and improvements of processes. Thus, in order to carry out BPR project, a series of steps need to be followed. With respect to BPR methodology and principles, numerous authors (e.g., Hammer and Champy, 1993; Linden, 1998; Attaran and Wood, 1999; Wu and Du, 2010) published various sets of methodology and principles. To grasp the concepts of BPR, it is worth mentioning to highlight some of BPR methodology and principles. Thus, based on the scope of the study, some of them reviewed hereunder with special emphasis on BPR implementation.

According to Wu and Du (2010), to undertake BPR project, four basic phases followed. The first phase involves conducting need analysis to determine whether the organization to conduct BPR or not. In the second phase, organizations decided to engage with BPR need to make preliminary preparation in order to reconstruct concepts. As per Wu and DU (2010), this phase includes making reengineering objectives clear, forming of redesign team; establishing organization's vision; good communication with employees; and establishing the appropriate organizational culture. In the third phase, redesign team formed at the second phase begin reengineering of process.

As Wu and Du (2010) noted in third phase, the first step is to conduct an analysis of existing processes, identify problems in existing process; and the second step is the design of more effective new process. At the finally phase, newly design process piloted to test its performance and if necessary, revision and improvement made, in order to implement the process at organization wide. To ensure the success of BPR, this phase also includes reforming the original organizational structure, staffing, performance evaluation, and technological alignment of the newly designed process.

In connection with BPR implementation, Grover et al. (1995) conceptualized it as the ongoing process of preparing the organization for new system and introducing it to assure its successful use. Implementing the redesigned process is typically an intricate and complex process that involves strategy alignment, project planning and scheduling, and resource allocation. The earlier work of Hummer and Champy (1993) categorized the

implementation phase into two points. One is the redesigned process tested and implemented, and the other point is the alignment of organization's structure, management and measurement system, values and beliefs, and IT to new process.

More broadly, Linden (1998) mentioned appropriate sets of steps to be followed during implementation phase. The steps include: (i) developing a charter; (ii) establishing communication strategies; (iii) hold an all hand meeting to review the model; (iv) prepare a detailed implementation plan; (v) run pilot tests, revise the redesigned processes if needed; (vi) implement short-term changes; (vii) phase in long-term changes; and (vii) measure the performance of the new process. These steps of Linden (1998) stressed that an implementation plan should be developed to spells out the work that needs to be done, with timeframes, decision points, and resource allocations. Pilot testing provides a method for refining the process and building support for the full implementation. In addition, training and workforce issues are important for effective implementation plan. Moreover, the steps stressed the importance of ongoing performance measurement and feedback to continually improve the new processes once it is in place.

Generally, Attaran and Wood's (1999) outlined basic guidelines of BPR. Some of the authors' guidelines include the following: reengineering effort should be constructed by a clearly defined strategic vision; reengineering should focus on important cross-organizational business processes which are critical to the organization's vision; cost reduction is not the only goal of reengineering rather seeking opportunities for new sources of revenue growth could be an important driving for the reengineering efforts; and leadership plays an important role for the success of reengineering. Due to the complex and intricate nature of BPR implementation, Wu and Du (2010) stressed the importance of careful thinking about the necessity of BPR to the organization prior to engage with BPR project; otherwise, it cannot bring new vitality to the organization, but also create chaos businesses in the organization.

So far, some highlights of BPR methodology and principles presented. Thus, the reviews suggest that organizations should adopt a suitable BPR methodology to serve as a

framework for the success of BPR. The following section presents reviews regarding to BPR applicability in higher education.

2.1.1. BPR in higher education

The motivation to undertake BPR project is usually the realization of breakthrough performance improvement. Lingus (1993, cited in Terziovskia et al., 2002) claimed that a "30-35% reduction in the cost of sales; 75-80% reduction in delivery time; 60-80% reduction in inventory; 65-70% reduction in the cost of quality; and unpredictable but substantial increased market share", were all possible through effective BPR. In general, as indicated previously, BPR in response of the three driving forces (change, competition and customer) used to redirect organizations to new working practices.

Many organizations in various industries (banking, manufacturing, services, and so on) used BPR as a panacea for organizational illness and to respond to high level of competition, changing environment and customer needs (Attaran and Wood, 1999; Mnisha, 2004). Since educational institutions function similar to other types of business organization, they can use various management tools used by business organizations (Balaji, 2004). Thus, higher education institutions attempt (either voluntarily or under mandate) to adopt new management systems and processes that were originally designed to meet the needs of more efficient business organizations.

Specifically, Casey (1995) noted BPR as a thoroughly researched and well-crafted prescriptions punch list for evaluating how well a college or university runs its business. Thus, for the pursuit of radical and fundamental change of work practices, Casey (1995) view suggests the applicability of BPR in higher education institutions. As a justification, Sepehri et al.(2004) claimed that higher education, due to strong existing culture which does not seems to fit the present era, have faced financial and structural crisis. In addition, the authors argued that higher educations must be refined with respect to new methods and existing technologies to provide knowledge development and transfer in ways that are more productive. In this regard, it can be said that higher education are always under pressure to become more efficient and effective. Therefore, since BPR used

for dramatic performance enhancement, it suits to improve higher educations' performance.

Despite the fact of BPR applicability in higher education, arguments exist about its use in educational institutions. As Porter (1993) argued, BPR could not be applied to higher education in the foreseeable future and further states. Porter (1993) argument for this position is that BPR success will not occur because no one wants fundamental changes in teaching and research, because there is no demonstrated need, benefit, or support for such an effort in higher education. Instead, the author claimed that administrative processes of higher education could be redesigned like other types of business organization.

However, Stahlke and Nyce (1996) annoyed Porter's (1993) position and they stressed that successful reengineering in higher education must begin with teaching and learning, rather than administrative processes. As the authors noted, addressing educational processes first will naturally force a reconsideration of such features as the student credit hour, faculty load, space utilization, the academic calendar, course scheduling, instructional resources like technology, and the design of student-faculty interaction.

Although arguments exist about the use of BPR either for the academic or administrative processes of higher education, the educational quality in a higher education is determined through the physical, virtual and human resource availability and how effectively they are being used (Iqbal, 2007). In response, educational institutions in pursuit of improved performance used BPR in various countries. For instance, in Canada, Iran, Malaysia, New Zealand, Northern Ireland, Spain, Turku, United Kingdom (UK), and United State of America (USA), educational institution implemented BPR to enhance their efficiency, effectiveness and economic performance (Adenso-Diaz and Canteli, 2004; Allen and Fifield, 1999; Balaji, 2004; Casey, 1995; Kontio, 2007; McAdam and Bickerstaff, 2001; Sepehri et al., 2004; Sohail et al., 2006; Whalen and Wright, 1999). Therefore, these experiences highlighted that higher education institutions can adopt BPR to enhance their performances like other types of business organizations. However, whether BPR applied in academic or/and administrative processes of higher education or other types of

business organization, BPR implementation indicated as the most challenge prone endeavor. The following section presents factors that determine BPR implementation success or failure, which is the objective of this study focused.

2.1.2. BPR implementation barriers

BPR will have significant positive results for the organization, if correctly implemented. Several authors (Attaran and Wood, 1999; Revenaugh, 1994; Terziovskia et al., 2003) indicated numerous organizations (Ford Motor, Wal-Mart, IBM Credit Co., and so on) who were achieved larger cost reduction, higher profits, improved quality and productivity, faster response to market and customer service through BPR. Assefa (2009) claimed that, in Ethiopia, the experiences of the Ministry of Trade and Industry (MOTI), the Ethiopian Investment Commission, and the Ethiopian Customs Authority were instructive examples of how institutions can be transformed using BPR to be more responsive, efficient and effective. Furthermore, in Ethiopia, as Debela and Hagos (2011) reported in their research findings, public organizations like Commercial Bank of Ethiopia and Ethiopian Revenue and Customs Authority have been successful in meeting their BPR objectives.

However, despite the significant growth of BPR literatures and increasingly used by many organizations, not all organizations achieved the intended objectives of BPR. As Hammer and Champy (1993) estimated, about 50 to 70% of BPR projects fail to achieve dramatic results that the organizations intended to achieve. Likewise, General Accounting Office (GAO) of United States (1997) noted that the implementation of a new process is typically the most failure-prone phase of BPR because of an organization's natural resistance to change. Linden (1998) also noted the biggest source of organizational disappointment with BPR change effort as implementation, or more specifically, lack of implementation. Thus, as more organizations undertaken BPR project, issues on BPR implementation becomes a major concern.

As the definition of BPR highlighted, it is the implementation of radical and fundamental change in business processes of the organization to achieve dramatic performance

improvements (Hammer and Champy, 1993). In connection with this definition, Cypress (1994, cited in Guimaraes, 1998) noted BPR as an attempt to change the way work is performed by simultaneously addressing all aspects of work that impact performance including the process activities, the people's jobs and their reward system, the organization structure and the roles of process performers and managers, the management system and the underlying corporate culture which holds the beliefs and values that influence everyone's behavior and expectations. As such, Grover et al. (1995) noted that the broad organizational focus and deliberate nature of BPR needs a planned change. Specifically, the authors suggested preparation and deliberate actions, support from management, technical competence, and mitigation of resistance to change as requirements for the success of BPR implementation.

Along with the above suggestions of Grover et al. (1995), GAO (1997) claimed the factor for the failure of BPR as not lied in managing the technical or operational aspects of change, instead in managing the human dimensions of change. However, there are various reasons that make BPR project to fail. To understand thoroughly the issues involved on BPR implementation failure, this section reviewed the primary barriers for effective BPR implementation.

Attaran and Wood's (1999) article identified five primary obstacles to more effective BPR implementation. That are misunderstanding of the concept, misapplication of the term, lack of proper strategy, management failure to change, and failing to recognize the importance of people. Underscoring the five primary obstacles of Attaran and Wood (1999) is appropriate. Such as BPR is not downsizing, automation, restructuring, or more of the same. It is dramatic revising of the organization's process and changing the way in which work is carried out. BPR requires creative thinking and new perspective on the part of management, and top management must change their ways of thinking and develop new skills. Employees play an important role in the success of BPR. Hence, employees fear about job displacement due to redesigned process and coping with their resistance needs to be alleviated. Thus, without an effective approach to deal with employees' resistance, BPR implementation is certain to fail.

Meanwhile, Attaran's (2000) article advanced the above-discussed five primary obstacles (Attaran and Wood, 1999) to eight. The author also clarified the difference between success and failure as not depend on the company size or resources, but on appropriate planning and avoidance of pitfalls. The additional three primary obstacles are 'lack of flexibility' in terms of existing rigid infrastructure of the organization; 'lack of organizational communication' to loop feedbacks for employees to air their concerns; and 'failure to test the process' to understand the impact of any process change. At the end, Attaran (2000) concluded that organization often fail to achieve BPR objectives because trivializing the concept and ignoring the pitfalls result dangers that makes BPR effort just another short-lived improvement.

On top of the above-mentioned, Al-Mashari and Zairi (1999) recognized implementation of BPR as complex and needs to be checked against several success and failure factors to ensure successful implementation by avoiding implementation pitfalls. In their review of both soft and hard factors that cause success and failure of BPR effort, they had identified five categories, namely change-management and culture, management competency and support, organizational structure, project planning and management, and IT infrastructure. In general, from various literature sources, the authors distilled these five success and failure factors in to thirty-three and twenty-two subgroups, respectively (see appendix 1).

BPR could be considered as innovation, because it results new types of business processes by obliterating existing business processes; where innovation is an idea, practice, products, processes, services, policies or technology that is perceived as new by the organization whether other organizations previously used it or not (Klein and Sorra, 1996). As such, innovation implementation literatures, like BPR implementation, also identified barriers for successful implementation. The recent work of Klein and Knight (2005), attempted to describe six interrelated obstacles that organizations face during innovation implementation along with six allowing factors to overcome obstacles during implementation.

According to Klein and Knight (2005), the six obstacles that initiate challenges during innovation implementation are unreliable and imperfectly designed innovation; innovation requires new knowledge use; little or no user input in adoption and implementation of innovation decisions; innovation requires individuals to change their roles, routines, and norms; time consuming and expensive nature of implementation; and organizational status quo maintenance.

To tackle with the aforementioned challenges, Klein & Knight (2005) suggested six key factors to shape the process and outcomes of innovation implementation. These are quality implementation policies and practices; strong and positive climate for innovation implementation; strong, convincing, informed, and demonstrable management support because in the absence these employees are likely to conclude that innovation as a passing managerial fancy; availability of financial resources; learning orientation; and long-term oriented managerial patience to achieve innovation's benefits.

Since this study conducted on public universities, it is worth mentioning challenging factors of BPR implementation specific to public organizations. In doing so, the work of Reyes (2001) reviewed. As the author noted, government activities are often so interrelated, cutting across not only divisions and units within an agency, but also tending to spillover to other agencies. Further, the author noted bureaucratic behavior and action as often based on laws and a series of incremental changes in rules derived from policies or legislation, which may be difficult to overhaul overnight. In these cases, BPR implementation in public organization could be challenging, because, to redesign processes for dramatic performance, BPR methodology requires breakdowns of old processes' assumptions and laws (Linden, 1998, pp. 67).

In addition, Reyes (2001) noted implementing BPR in public sector, which is reengineering fundamentals of "breaking away from the past", as a major obstacle. As the author justified in this case, the culture of bureaucracies have been so ingrained that any effort to modify it may receive resistance not only from bureaucrats, but politicians and interest groups as well. In this regard, the author noted that in government organizations,

any deviation from the status quo considered as a threat, and seen as part of a hidden agenda that can be political in nature.

Another difficulty, as Reyes (2001) noted, to implement BPR in public organization is that substantial investments requirements of BPR in developing or even upgrading IT, because IT considered enabler of redesigned processes. In this case, the author reasoned that investing on IT might put government budgets under severe pressure considering the costs of hardware, consultants, constant upgrading and maintenance, as well as training and re-training of employees. Thus, the cost of BPR project impedes its implementation.

Political and pluralist bureaucratic environment factors also confronting BPR implementation in public organization. As Reyes (2001) claimed, these factors refer to the environment of the political system, because success in government consists not just making the right decisions, but also of mobilizing political support for the decision. Thus, to implement BPR in public organization needs commitment and support of top management who have real power to change.

Moreover, Reyes (2001) pointed a major issue that would have to be addressed is that downsizing due to the redesigned processes. Wide scale removal or dismissal of government personnel at any levels may invite the wrath of both politicians and of the public. Adding to this, the author noted the use of BPR by misguided officials as the downsizing strategy to dismiss government personnel. Thus, employees' resistance could be manifested when wide scale downsizing suspected due to BPR implementation. In general, BPR implementation in public organization faces challenges due to existing laws or proclamations of a country. In addition, lack of financial resources and hidden political agenda manifested by bureaucrats diminish BPR implementation in public organization.

So far, literature reviews made regarding to the theoretical perspectives of BPR like its methodology, its applicability in higher education with countries experience, and its implementation barriers. Hence, the aforementioned factors for the success and failure of BPR implementation suggest that BPR implementation phase constrained by various factors and suggest a need to be addressed for the success of BPR implementation. Since

the conception of BPR, numerous researchers carried out researches on BPR; the following section presents selected empirical studies on BPR.

2.2. Empirical studies on BPR

As indicated previously, organizations use BPR for better performance improvement; and the driving factors to undertake BPR accounted to the 'three C's' that are change, competition and customers (Hammer and Champy, 1993). Starting from the introduction of BPR at the beginning of 1990s, issues on BPR increased and many researchers undertaken studies on it, to date. Thus, in order to highlight literature gaps, this section first reviewed selected empirical studies on BPR implementation factors and then empirical studies conducted in Ethiopian context reviewed.

The study conducted by Grover et al. (1995) on the research area of BPR implementation attempt to identify numerous challenging factors of BPR implementation. As the authors indicated, their research empirically sought to explore BPR implementation problems and the severities of problems how relates to BPR implementation success. To carry out this study, they have identified sixty-four BPR implementation problems based on past theories and research related to the implementation of organizational change as well as field experience of reengineering experts (see appendix 2). Further, the authors categorized the identified problems in to six main groups, namely management support problems, technological competence problems, process delineation problems, project-planning problems, change-management problems, and project management problems. Then, the authors used the identified problems in the survey instrument to generate responses from 239 individuals who have participated in BPR projects in 105 organizations.

Grover et al. (1995) analysis of the results showed the importance of change management in BPR implementation success. As result also showed, addressing problems in technological competence and project planning are necessary, but not sufficient, conditions for reengineering success. Further, problems related to project management and training personnel for the redesigned process are highly related to project success. In

general, the findings of Grover et al. (1995) noted that BPR implementation as complex. Thus, to succeed with BPR implementation, the authors suggest that organizational change to be essentially managed and balanced attention to be paid to those that are contextual factors (e.g., management support and technological competence) as well as factors that pertain directly to the conduct of the project (e.g., project management and process delineation).

With respect to BPR implementation in higher educations, Allen and Fiefield (1999) studied the applicability of BPR in higher education institutions of UK along with factors that affect the change process of BPR. In doing so, the researchers adopted case study approach on five selected universities of UK and gathered data through seven structured interviews from project stakeholders in the universities undergoing BPR programs. At the first glance, the researchers identified a range of factors that make implementation of BPR in these universities a difficult process. The factors are senior management approval, complex information requirements, institutional policies and entrenched values, academic freedom, inertia, business process improvement (conservative change programs), IT driven change, maintaining the status quo, failure to reengineer human resources, and organizational transformation.

The findings drawn from the study (Allen and Fiefield, 1999) are that the organizational culture and structure of higher education institutions limit the degree of change sought from BPR and insufficient attention given to the human resources side of change management. As the authors claimed, the selected five universities for the most part of implementing the project represent a limited approximation of BPR techniques. In other words, the project was not about radically changing the organization by obliterating existing processes, instead, it was process improvement. Thus, the radical change of BPR conflicted with the factors previously mentioned. Particularly, as Allen and Fiefield (1999) indicated, the power of academic departments, the professional status of academics and inertia within the universities made radical change unlikely.

To study New Zealand's tertiary institute BPR implementation, Balaji (2004) conducted research using a case study strategy. The main purpose of the study was to gain an in-depth insight of experience and understand the dynamics of process reengineering and implementation in the institute. As the researcher claimed, data gathered from semi-structured interview with member of the institute and further analyses revealed the use of internal staff to drive BPR efforts resulted in higher level of organizational commitment to manage the process in the institute, which played a critical role in its success. Further, the researcher claimed that implementation of BPR in the institute yield better results, while information technology recognized as an important factor for the success of BPR. Finally, Balaji (2004) conclude that BPR is a tool that is available for any tertiary education institute in its artillery to improve its efficiency and performance.

Research carried out by Ahmad et al. (2007) showed critical success factors of BPR in Malaysia higher education institutions. The study used a case study based on open-ended interviews with top managers and BPR team members of three-selected private higher education in Malaysia. The findings highlighted that seven factors were critical for the successful implementation of BPR. The factors are teamwork and quality culture, quality management system and satisfactory rewards, effective change management, less bureaucratic and participation, IT or information system, effective project management, and adequate financial resources. In general, their study provides important lessons as a condition for the success of BPR project.

Kontio (2007) undertaken case study research at Turku University of Applied Sciences to describe reengineering process of human resource management related to organizing teaching and other tasks in degree programs. As the researcher confirmed, human resource management process of the university has improved significantly by using BPR, but the overall process of the project took quite a long time. The research also confirms the essential role of management support for the success of BPR implementation at the university. As the author finally concluded, the relative advantage of new processes was clearly better than the previous way of doing businesses at the university.

To this point, empirical studies on BPR implementation with respect to higher education, except Grover et al. (1995) research, reviewed. Although BPR is a recent phenomenon used to reengineer public organizations of Ethiopia, some researchers have been engaged to study BPR in a context of Ethiopian public organizations. For instance, using mixed method research design, Mengesha and Common (2007), Debela (2009), and Debela and Hagos (2011) studied BPR design and implementation on selected public organizations of Ethiopia. However, based on the researcher knowledge, there was no empirical study conducted on Ethiopian public universities' BPR implementation success/failure factors. Hereunder, the aforementioned empirical studies conducted in Ethiopian case reviewed.

Research conducted by Mengesha and Common (2007) evaluated the implementation of public sector capacity reform in Ethiopia on two selected Ministries - Ministry of Trade and Industry (MOTI) and Ministry of Education (MoE). In doing so, the researchers used a mixed method research design and gathered data using structured questionnaire and interview from respondents. Mengesha and Common (2007) based on their finding claimed that in each organization very high levels of user satisfaction and spectacular improvements in performance recorded because of BPR. However, the researchers also noted that the change process in both organizations tended has been sluggish. As per the researchers' recommendation, appropriate rewards and motivational instruments required to enhance the momentum of change reform in public organizations of Ethiopia.

The study of Debela (2009) showed the relationship between BPR theory and practice in Ethiopian public organization. Hence, the researcher used case study strategy to assess BPR experience of Ministry of Capacity Building and other civil service organizations in Ethiopia. As indicated by the researcher, data were collected using observation technique, participating in meetings, and interviewing officials and reengineering teams. Although the research tried to present BPR theory and practice by public organization, the finding report lacks consistency. For instance, the researcher indicated that improvement in the performance of agencies attributed to IT use in processing customer's request, while the researcher claimed that non-consideration of automation at the time of reengineering has made all the redesigned process to be incomplete and non-exhaustive. However, the

researcher recommended considerable points regarding to BPR applicability to improve service delivery in Ethiopian public organizations. Such as to recognize the differences between the characteristics of government organizations and profit making corporations in process design, to recognize the use of IT as vital for successful BPR implementation, to recognize human resource capacity as determinant for the success of BPR, and so on.

Debela and Hagos (2011) study was the recent empirical study, which was conducted in four public organizations of Ethiopia, namely Ethiopian Revenue and Custom Authority, Ministry of Labor and Social Affairs, Commercial Bank of Ethiopia, and Development Bank of Ethiopia. Using mixed method research design, the authors noted that in the selected four organizations encouraging results have been achieved in terms of efficiency, mission effectiveness, transparency, and minimizing corruption. However, the authors claimed that the selected four organizations faced challenges in human, technological and material capacities in their BPR project implementation. Finally, Debela and Hagos (2011) recommended that the government of Ethiopia might needs to exert greater effort to change the attitude of public servants and the political leaders, adopt a holistic and integrated approach in using reform tools, and consider mission differences when applying a change management tool in public organizations.

2.3. Conclusion and gap in literature

Organizations required responding to changing environments through various management tools. In response, organizations use appropriate management tools to alleviate the changing environment and to increase their performance. Among the various management tools, BPR is one of the management tool undertaken by organizations. Its concept was first introduced by Hammer (1990) and Davenport and Short (1990) due to globalization and extraordinary IT development pace with three driving forces of customers, competition, and change.

Various organization employed BPR in pursuit of improved performances. Since education institutions function like other types of business organizations, BPR also used by educational institutions in Malaysia, New Zealand, Spain, UK, USA and so on (Sohail

et al., 2006; Balaji, 2004; Adenso-Diaz and Canteli, 2004; Allen and Fifield, 1999; Casey, 1995) to enhance their performance.

Despite the increased use of BPR in various organization resulted enhanced performance, not all organization realized the promises of BPR. According to Hammer and Champy (1993) estimate, about 70 percent of BPR project failed. Several authors (Al-Mashari and Zairi, 1999; Attaran, 2000) mentioned numerous failure factors of BPR. Such as BPR concepts misunderstanding, misapplications of BPR terms, management failure to change their values and beliefs, and so forth. Allen and Fiefield (1999) study indicates that factors that were not identified by other researchers, such as academic freedom and complex information requirements. In addition, the study conducted by Ahmad et al. (2007) showed that seven factors contributed for the success of BPR in Malaysian higher education institutions. The seven factors were teamwork and quality culture, quality management system and satisfactory rewards, effective change management, less bureaucratic and participation, IT or information system, effective project management, and adequate financial resources.

However, due to its recent introduction of BPR in Ethiopia, limited number of study conducted on Ethiopian public organizations' BPR project. Among them, Debela's (2009), Debela and Hagos's (2011), and Mengesha and Common's (2007) studies acknowledged as steppingstone on the issues of BPR in Ethiopian public organization.

As per the researcher knowledge, there is no comprehensive study on BPR implementation challenges in Ethiopian context, specifically, public universities' BPR implementation stands. Thus, this gap leads to originate the following general research question and a need to study BPR implementation challenges in public universities:

> *What are the various challenging factors that public universities faced to implement BPR and their magnitudes to affect BPR implementation?*

2.4. Definition of terms

- **Cascading of policies**: - sets of program of actions adopted by government that requires implementation.
- **Change management**: - that involves all human- and social-related changes and cultural adjustment techniques needed by management to facilitate the insertion of newly designed processes and structures into working practice and to deal effectively with resistance (Ahmad et al., 1999).
- **Core processes**:- are those that end up touching an external customers; they occur when an employee fills a customer's order, responds to a customer's complaint, or develops a new program or product (Linden, 1998, pp.8)
- **Design team members**: - refers to individuals participated to redesign the way work is done. The members take the current process, analyze it and come up with a fundamentally new design (Linden, 1998, pp.25).
- **Implementation team members**:- individuals who actually implement the redesigned processes. They can be redesign team members or others, but not necessarily redesign team members (Linden, 1998, pp.151).
- **IT**: - represents an all-encompassing term for computer workstations linked to computer networks, open systems, client–server architecture, database groupware, and electronic commerce. Together they can simplify a manual-paper based business process for automated business processes (O'Neill and Sohal, 1999).
- **Process**:- is a set of interrelated steps that begins with an input or trigger and end with an outcome that satisfies the end user (Linden, 1998, pp.8)
- **Redesigned processes**: - means those processes newly redesigned by disregarding all existing structures and procedures, and inventing completely new ways of accomplishing work (Tanoglu, 2004).
- **Support processes**:- are internally focused, such as the process of recruiting, hiring, and training new employees (Linden, 1998, pp.8)

Chapter 3: Research design

The preceding chapter presented reviews of literature on BPR with respect to the theoretical perspectives and prior empirical studies. The literature review confirms that there was no study conducted on Ethiopian public universities' BPR implementation. The purpose of this chapter is to present the main principles of research methodology and the adopted research method for this study.

3.1. Research methods

There are three types of research design: quantitative, qualitative and mixed methods. Quantitative research is a means for testing objective theories by examining the relationship among variables. On the other hand, qualitative research is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. Between the two strands, mixed methods research is an approach that combines or associates both quantitative and qualitative designs to inquire an issue (Creswell 2009, pp.4). However, the author noted that the selection of a research design involves the considerations of the worldview assumptions the research brings to study, the nature of research problem, procedures of inquiry, the researcher's experience, audiences for the study, and data collection methods, analysis and interpretation.

As tried to indicate the types of research design and their meaning previously, quantitative and qualitative designs have distinct characters, while mixed methods design shares the characters of both designs. The research design involves the interactions of philosophical worldview, strategies of inquiry, and specific methods for the quantitative, qualitative and mixed methods design (Creswell, 2009, pp.5). The following sections reviewed the aforementioned characters for each type of research designs in which it helped to adopt the fitted research method for this study.

Quantitative research design possesses the postpositivist worldview assumption that encompasses 'deterministic philosophy' in which causes probably determine the effect, and 'reductionistic philosophy' to reduce the ideas into a small, discrete set of ideas to test variables that comprise hypotheses and research questions. Postpositivism develop

knowledge based on objective observation and measurement as well as verify theories that govern the world (Swanson and Holton, 2005, pp.19). Quantitative design employs strategies of inquiry such as survey and experiment, and collect data through standardized instruments that are close-ended question and numeric data. Using statistical method, it generalizes about the population from the sample (Swanson and Holton, 2005, pp.32).

Qualitative research design possesses social constructivism worldview assumptions that holds individuals seek to understand the world in which they live and work. The participant views relied on participants to construct meanings and the researcher inductively develops theory or pattern of subjective meaning (Creswell, 2009, pp.8). Qualitative research design tries to assess experiences and events contextually within the participants' natural setting. It employs strategies of inquiry like ethnographies, grounded theory, case study, phenomenological research and narrative research and collect data through observation, interviews, text and image data that are open-ended and emerging. The findings are subjective that the inquirer inductively generates meanings from the data collected in the field (Creswell, 2009, pp.11-13).

Mixed methods design possesses the pragmatic worldview that focused on the research problem for the consequence of actions. Pragmatic worldview uses pluralistic approach to drive knowledge about the problem. Accordingly, researchers have a freedom to choose the methods, techniques, and procedures of research that best suits the purposes of the study. Thus, mixed method design involves philosophical assumptions to use the mix of quantitative and qualitative designs (Nagy, 2010, pp.3). It employs strategies of inquiry such as sequential, concurrent and transformative mixed method and both close and open ended, standardized and emerging, quantitative and qualitative data collected.

In general, quantitative and qualitative designs have their own inherent advantages and disadvantages. Although the advantages and disadvantages of them not discussed here, mixed methods design emanated to utilize the advantages and to tackle the disadvantages of the two designs. As cited in Creswell (2009, pp.14), the concept of mixing different

methods originated in 1959, when Campbell and Fisk used multi-methods to study validity of psychological traits.

The reasons for mixing methods includes to triangulate data source for the sake of convergence across quantitative and qualitative methods; to integrate or combine the quantitative and qualitative data to identify participants or questions to ask for the other method or to reinforce each other; or transformative to advocate marginalized groups (Nagy, 2010, pp.3-6).

Having the above summarized reviews of research designs, several studies on BPR in terms of research design, used quantitative and qualitative designs. In the case of BPR implementation in higher education, researchers like Ahmad et al., 2007; Sohail et al., 2006; Balaji, 2004; Allen and Fiefield, 1999 used qualitative research design. On the other hand, studies on BPR implementation in other industries, researchers like Tennant and Yi-Chieh, 2005; Terziovskia et al., 2002; O'Neill and Sohal, 1998; Grover et al., 1995 used quantitative research design. These practices suggest that both types of research designs could be applicable to study BPR implementation. Thus, as indicated in chapter one, section 1.1 and 1.3, this study adopted mixed methods design to get the benefits of mixed methods design. The following sections discussed the method adopted.

3.2. Research method adopted

As indicated earlier, to get a brief understanding of the research problem and to benefit from the method adopted, mixed method design used to study BPR implementation in Ethiopian public universities. Besides, sequential explanatory strategy used in the method adopted. This strategy characterized by the collection and analysis of quantitative data in the first phase of research followed by the collection and analysis of qualitative data in the second phase that builds on the result of the initial quantitative results (Swanson and Holton, 2005, pp.321). In the first phase of the study, survey was conducted to identify factors that affect BPR implementation, and in the second phase, based on results of the first phase, interviews were held to better understand the magnitude of identified factors.

The following sections discuss the quantitative and qualitative features of mixed methods adopted during the study.

3.2.1. Quantitative feature of mixed method

In a first phase, the quantitative research design helped to identified various challenging factors of BPR implementation in Ethiopian public universities. The quantitative features of research design, namely the strategy of inquiry; sampling design; survey instrument; variables, research questions and items on a survey instrument; and data analysis and interpretation presented hereunder.

Survey design

As Swanson and Holton (2005, pp.99) claimed, the purpose of survey research in organizations is to collect information from one or more people on some set of organizationally relevant constructs. Thus, to gather data relevant for the identification of various factors that affect BPR implementation, the study employed survey strategy to gather data from BPR project redesign and implementation team members of public universities (justified latter). In addition, data were collected one point in time (cross sectional) from the respondents.

The rationales to adopt survey strategy were the economy of the design and the rapid turnaround in data collection. Particularly, the later one fitted the samples that were selected from BPR redesign and implementation team members; because some team members were not available at their university premises (e.g. educational leave). Thus, respondents who were not available at the university, they were surveyed using e-mail survey instrument to reach dispersed geographical area that the respondents reside. In doing so, respondents address acquired from their colleagues.

Sample design

As indicated in chapter one, in Ethiopia there are twenty-two public universities, as of 2011. Among these, eleven universities considered as '*elder*' universities and the remaining are '*newly*' established universities. Having this, the researcher decided to took four universities, in which two universities from '*elder*' group and two universities from

'*new*' group. Namely, Addis Ababa University and Hawassa University from '*elder*' group and Samara University and Wollo University from '*new*' group selected.

To study BPR implementation at universities, the study population units constitute service providers and users. However, defining the study population and study units depend on the research problem and study's objectives (Walonick, 2005). Unless the universities fully implemented the redesigned processes, not all service providers and users included as study's population units. To help ensure validity, Huber and Power (1985, cited in Grover et al., 1995) also suggested to select informants who are most knowledgeable about the issue of interest researched. Thus, to gather data on the perceived experiences of respondents, the study's population units comprised individuals who were directly involved on BPR project of universities as redesign or implementation team members.

Accordingly, to generate the sampling frame, lists of participants were acquired from each university. The numbers of BPR redesign and implementation team members of Addis Ababa University, Hawassa University, Samara University and Wollo University were 59, 28, 22, and 26, respectively. Totally, the study's population size comprised 135 individuals. After having the sampling frame, from each university, 10 respondents were selected randomly to the survey. As a result, the sample size comprised 40 respondents.

Survey instrument

The survey instrument developed based on the literature review, most of the items in the instrument adapted from the work of Grover et al. (1995) and Al-Mashari and Zairi (1999). All items in the instrument were close-ended questions. In addition, items in the survey instrument categorized in to four parts (see appendix 3).

Part 1 of the survey instrument sought to get respondent's profile. Part 2 dealt about BPR implementation at the university, typical questions in this part sought to get the extent of BPR implementation at the university and the period required to implement BPR at the university. Part 3 tried to get responses in the areas of BPR project cost and benefits. Thus, to get the perceived level of BPR cost and benefits, all items in this part developed

using five-point Likert-type scales ('strongly agree' to 'strongly disagree'). The last part sought to get responses in the areas of BPR implementation challenging factors. Like part 3, all items in part 4 developed using five-point Likert-type scales. The Likert-type questions helped to get respondents' perceived experiences about each challenging factors.

Part 4 of the instrument included thirty challenging factors of BPR implementation and these factors categorized in to six sections. Section 'A', top management support factors, deals with managers' active commitment and support for BPR. Section 'B', change-management factors, relate to managing organizational change and cultural adjustments for new processes. Section 'c', organizational factors, accounted to organizational readiness to change and organizational structure. Section 'D', BPR project management factors, relate to how the project undertaken. Section 'E', IT factors, relate to how IT considered in the redesigned processes, IT investment and training provision about IT. The last section deals about country specific factors like existing rules and regulations of the country, availability of financial resources required to implement BPR, and lack of implementation that nurturing uncertainty and resistance to future programs.

Besides, to make clear about the study, the cover page of the instrument indicated study's objectives, importance of their responses to the study along with confidentiality matter and procedures to mark their responses. Moreover, to ensure highest response rate, respondents were asked their willingness to participate in the study before the questionnaire distributed. After getting their willingness, the researcher personally distributed the instrument, while to those respondents who were not available at their university premises, the instrument forwarded through their email address.

Variables, research questions and items on the survey instrument relationship

With respect to the dependent variable of the study, item number four in part two of the survey instrument, i.e., *the extent of redesigned processes implemented at the university*, considered as dependent variable. All items in part three of the survey instrument, except the item of BPR project cost, also considered as the dependent variable. Because,

expected benefits of BPR translated in to improved performance when universities implemented the redesigned processes, whereas if universities challenged to implement BPR due to various factors, they will lose the expected benefits.

On the other hand, all items in part four considered as independent variables of the study. Table 3.1 presents the independent variable and dependent variable of the study with the research questions and items on the survey instrument.

Table 3.1: Variables, research questions and items on a survey

Variable name	Research questions	Items
Independent variable: Challenging factors to implement BPR	**Research question:** • What are the challenging factors that the university faced to implement BPR? • What are the challenging factors affect BPR implementation at elder universities and new universities?	**Survey instrument question:** 14 to 43
Dependent variable: Lack of implementation	**Research question:** How do those factors affect BPR implementation?	**Survey instrument question:** 4, 9, 10, 11, 12, and 13

Data analysis

Data obtained from the survey instrument were analyzed using quantitative data techniques. To analyze data obtained from the survey instrument, descriptive statistics were used, such as frequency, percentage, mean, and standard deviation. Specifically, to rank the relative severity of thirty challenging factors of BPR implementation incorporated in the part 4 of the instrument, respondents rated scale percentage used. In addition, to analyze data obtained from part 4 of the survey instrument, inferential statistic (i.e., Chi-square with significance level) used to refine the relative severity of various challenging factors among university type, i.e., elder universities and new universities group.

In order to give a clear view of the finding, tables and graphs were used. In general, the survey instrument responses keyed into Statistical Package for Social Science (SPSS) (version 19), to generate quantitative data output.

3.2.2. Qualitative feature of mixed method

As earlier mentioned, this study employed two phase- sequential explanatory strategy. In a first phase, quantitative data were gathered through survey instrument and results further used in a second phase of qualitative research. Accordingly, the connection or mixing occurred between quantitative data analysis and the data collection of second phase research. The analysis of quantitative data and its results helped to prepare qualitative interview questions. Thus, the identified factors that impeded BPR implementation further used to better understood their magnitude as challenging factors of BPR implementation in Ethiopian public universities.

To gather data for the second phase, face-to-face interviews with selected interviewees were held. Hence, in qualitative design, the sampling design is purposeful sampling design, three interviews were held with Ethiopian Ministry of Education officer for Higher Education Capacity Building, Higher Education Strategic Center officer, and Ex-Vice President of ABC (anonymous) University.

It was believed that interviewees have had better knowledge about BPR project of universities. Thus, the researcher interviewed three interviewees on issues based on the results of the first phase. Interview questions were prepared prior to conducting the interviews, while emerging questions also rose during the interview. In addition, before conducting the interviews, respondents' willingness asked first. After getting their willingness and schedules, the researcher interviewed the respondents using interview protocol and by making handwriting notes.

Qualitative data collected from interviewees were noticed in to appropriate contexts, written down, and thematically analysed. Potentially, the themes helped to analyse qualitative data for the second phase of the study.

Chapter 4: Results and analysis

The preceding chapter presented some principles of research methodology and the adopted research method for the study along with its rationale. This chapter presents the results and analysis of findings for the adopted sequential explanatory mixed method design in two sections. The first section presents the results and analysis of findings for the quantitative future of mixed method. Then, section two presents the results and analysis of findings for the qualitative future of mixed method.

4.1. Results and analysis: quantitative future of mixed method

The first phase (quantitative) of this study objective is to identify various challenging factors of BPR implementation in Ethiopian public universities. As indicated in chapter three, this study selected four public universities of Ethiopia. Namely, Addis Ababa University and Hawassa University were selected from elder universities group and Samara University and Wollo University were selected from newly established universities group. Henceforth, to present the results and analysis of findings for the selected universities, a general term, that is 'universities' used unless indicated.

To achieve the first phase research objective, survey was conducted on four universities Forty BPR project redesign and implementation team members in the universities were subjects of the study. Hereunder, results for the first phase of the study presented into five headings: respondents' profiles, BPR implementation at universities, BPR cost and benefits, BPR implementation challenging factors, and further refinements of BPR implementation challenging factors.

4.1.1. Respondents' profile

Part 1 of the survey instrument attempted to acquire respondents' profile with respect to their current educational level, their position at university, and their roles during BPR project. Of the forty respondents, about 83 percent were postgraduate and 15 percent were undergraduate (see Table 4.1). While only one respondent were PhD holder and no one accounted to the diploma or certificate educational level choice of item one in the survey instrument.

Table 4.1: Survey respondents by educational level

Educational level	Frequency	Percent
Undergraduate	6	15.0
Postgraduate	33	82.5
PhD or above	1	2.5
Total	**40**	**100.0**

As Table 4.2 shows, of the forty respondents, 67.5 percent were academic staff, 12.5 percent were administrative, and 20 percent shared both positions at their respected universities.

Table 4.2: Survey respondents' position at their universities

Position	Frequency	Percent
Academic staff	27	67.5
Administrative staff	5	12.5
Academic and administrative staff	8	20.0
Total	**40**	**100.0**

In terms of respondents' role during their universities engaged with BPR project, of the forty respondents, 67.5 percent were redesign team members, 32.5 were redesign and implementation team members. Whereas, no respondent accounted as only implementation team member of BPR project (see Table 4.3).

Table 4.3: Survey respondents' role in BPR project

Role	Frequency	Percent
Redesign team	27	67.5
Redesign and implementation team	13	32.5
Total	**40**	**100.0**

Generally, most of respondents for this study had Master Degree, who were academic staffs of the four universities. In addition, most of them were redesign team members when their universities engaged with BPR project. The following part of this section presents the results and analysis related to BPR implementation in Ethiopian public universities.

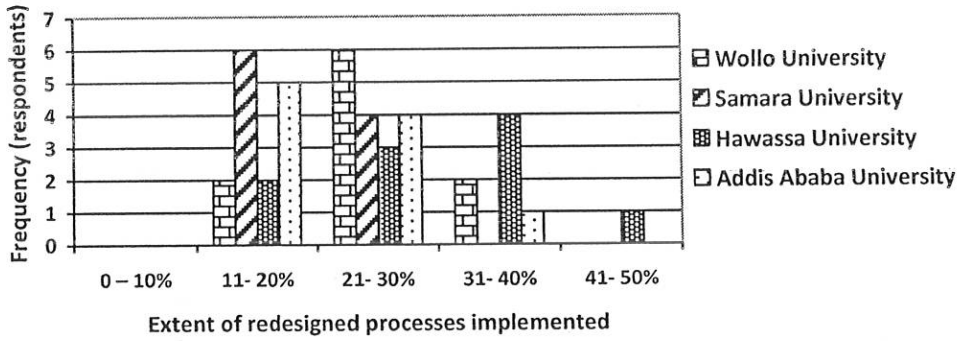
4.1.2. BPR implantation in Ethiopian public universities

In BPR principles, redesigned processes piloted before full-scale implementation at the organization. The pilot tests help the organization to assess the performance of redesigned processes and to take revision and improvement actions for organization wide implementation. However, the implementation phase of BPR is not a straightforward activities, which involves a complex and intricate activities for its success. As indicated in the problem statement section of chapter one, Ethiopian universities had finished the redesigned phase of BPR before the end of 2009. Based on the researcher knowledge, up to this study completed there was no exemplar university in Ethiopia who implemented the redesigned processes entirely. Debela and Hagos (2011) also claimed the existence of pace variation in Ethiopian public universities to implement the redesigned processes.

In order to measure the progress of BPR implementation at universities, respondents were asked in the survey instrument to rate the perceived level of redesigned processes implemented in their respected universities. Before presenting the aggregate results, the extent of BPR implementation in each university presented hereunder, based on 10 respondents at each university.

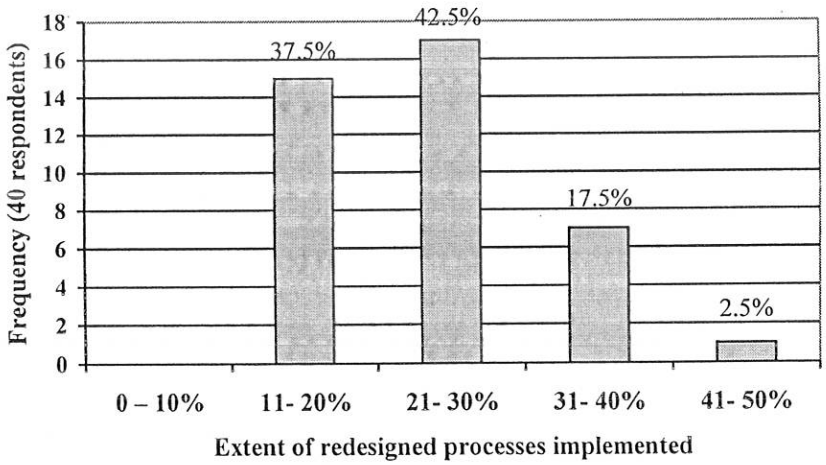
As Figure 4.1 shows, based on respondents' rated percentage of BPR implementation in their respected universities, the extent of redesigned processes implemented varied among universities. For the scale category of 11-20 percent of BPR implementation, 60, 50, 20 and 20 percent of Samara, Addis Ababa, Wollo and Hawassa University respondents rated their university in this category, respectively. For the scale category of 21-30 percent of BPR implementation, 60, 40, 40 and 30 percent of Wollo, Samara, Addis Ababa, and Hawassa University respondents rated their university in this category, respectively. For the scale category of 31-40 percent of BPR implementation, 40, 20 and 10 percent of Hawassa, Wollo, and Addis Ababa University respondents rated their university in this category, respectively. One respondent from Hawassa University rated the scale category of 41-50 percent of BPR implementation for the university.

Figure 4.1: Redesigned processes implemented at each university



Taking all respondents' (i.e., forty respondents) rate, the extent of redesigned processes implemented at four universities lied between 11 to 50 percent (see Figure 4.2). In this case, of the forty respondents, 80 percent of respondents rated 21-30 percent and 11-20 percent extent level of BPR implementation at universities. The remaining respondents, i.e., 17.5 percent and 2.5 percent of respondents rated 31-40 percent and 41-50 percent extent level of BPR implementation, respectively.

Figure 4.2: Redesigned processes implemented at universities



Generally, most of respondents' responses pattern indicates that 11 to 40 percent of universities' redesigned processes implemented, because all respondents, except one respondent, perceived that their universities implemented the redesigned processes within this extent. Thus, 60 percent of the redesigned processes not implemented so far.

The above discussion evidenced that the redesigned processes of Ethiopian public universities lack implementation. As such, universities not achieved the intended objectives of BPR. Unless the universities radically and fundamentally changed their business processes, they cannot achieve dramatic performance improvements using BPR.

In line with BPR implementation extent level at universities, the survey instrument attempted to capture the periods required to implement the entire redesigned processes of universities. As Table 4.4 presents, of the forty respondents, 35 percent and 30 percent of respondents believed universities to implement the entire redesigned processes between three-to-four years and two-to-three years, respectively. For the periods that covers less than two years and more than four years, 15 percent and 20 percent respondents considered universities to implement the entire redesigned processes in these periods, respectively. Generally, 45 percent of respondents believed that universities to implement the redesigned processes within one to three years, while 55 percent of respondents believed the implementation to take more than three years.

Table 4.4: BPR implementation periods

Period	Frequency	Percent
Between 1 year to 2 years	6	15.0
Between 2 years to 3 years	12	30.0
Between 3 years to 4 years	14	35.0
More than 4 years	8	20.0
Total	**40**	**100.0**

As indicated in subsection 2.1.1, arguments exist regarding to BPR applicability in higher education. The arguments emanated from whether BPR used to reengineer the academic processes (core processes)[1] or administrative processes (support processes) [2] of higher

[1] Core processes are those processes that are the reason an organization exists (Linden, 1998, pp.9), in case of higher education, teaching-learning (academic) process and research and community services indicated as core processes.

[2] Support processes are those processes internally focused and they are necessary, but they are not the purpose of the organization created to serve (Linden, 1998, pp.9). Administrative processes such as human resource management, finance and budget, facility management and so on indicated as support processes of higher education.

education. Porter (1993) claimed that administrative processes of higher education could be redesigned rather than the academic processes. On the other hand, Stahlke and Nyce (1996) argued Porter's (1993) position and they stressed the use of BPR to start first in the academic processes of higher education than the administrative processes. Due to these arguments, the survey instrument attempted to identify the most difficult process to implement at universities. As Table 4.5 shows, of the forty respondents, 72.5 percent of them claimed support processes as the most difficult to implement at universities, while 27.5 percent of them claimed core processes of universities as difficult to implement. Thus, it is evident that core processes of higher education not difficult to implement compared to support processes and it is in line with Stahlke and Nyce (1996) argument.

Table 4.5: Difficult process of to implement

Type of process	Frequency	Percent
Core processes	11	27.5
Support processes	29	72.5
Total	**40**	**100.0**

With respect to the responsibility to implement the redesigned processes of universities, most of respondents (above 50 percent) consented implementation team members, top management and employees of universities as responsible to implement the redesigned processes (see Table 4.6). However, none of respondents considered external consultants as a responsible to implement the redesigned processes.

Table 4.6: Responsible to implement BPR

Responsible to implement (n=40)	Yes		No	
	Frequency	Percent	Frequency	Percent
Redesign team members selected as implementation team members	20	50.0	20	50.0
Top managements of the university other than redesign team members	31	77.5	9	22.5
University's employees other than redesign team members	27	67.5	13	32.5
External consultants	0	0.0	40	100.0

The above discussions attempted to present BPR implementation in Ethiopian public universities that related to the extent of the redesigned processes implemented, the period required for full-scale implementation of processes, the difficult process to implement, and the responsible body to implement the processes. The following subsection presents BPR project cost and benefits of implementing the redesigned processes.

4.1.3. BPR project cost and benefits from implementation

To undertake BPR project, organizations incur financial and nonfinancial costs. In this regard, Wu and Du (2010) and Ahmad et al. (2007) noted BPR as advocates of a thorough reform that requires a lot of money and time. Fees for consultants and bonuses for redesign team members to cultivate their energy indicated as financial costs. Devoting time by senior managements to discuss issues on the project indicated as nonfinancial costs. However, these costs not incurred without benefit. The objective of BPR is to enhance organization's performance in terms of reducing business processes cost and cycle time, and increasing service quality and customer satisfaction. Despite the fact that organization incurs costs related to the project, the benefits gained from implementing the redesigned processes outweigh.

Data obtained from part 3 of the survey instrument helped to highlight universities' BPR project cost and benefits. To identify whether BPR project of universities cost a lot or not, respondents were asked to rate a five-point scale ('strongly agree' to 'strongly disagree'). In addition, to identify the benefits of BPR projects, respondents were asked to rate the expected benefits (*cost reduction, process cycle time reduction, increasing service quality, and increasing customers and employees satisfaction*) of redesigned processes when implemented.

As shown in Table 4.7, of the forty respondents, 45 percent of respondents claimed the consensus with '*BPR project of universities cost a lot*', while 17.5 percent of respondents were undecided about the consensus and 37.5 percent of respondents denied the consensus. However, taking the frequency mean (i.e., 3.1), the responses inclined to the agreement scale (i.e., more than 3). In this case, universities BPR project had cost a lot.

Since universities engaged with BPR to improve their performance dramatically, the benefits gained when universities implemented the redesigned processes could outweigh the costs incurred to the project. In line with this, Balaji (2004) finding also indicated that ABC College's (anonymous) BPR project had been very costly undertaken, but the management aimed to recover the costs and earn increased profits.

Table 4.7: BPR project cost

		Frequency	Percent
BPR project of the University cost a lot (n=40)	Strongly disagree	5	12.5
	Disagree	10	25.0
	Neutral	7	17.5
	Agree	12	30.0
	Strongly agree	6	15.0
Mean		3.1	
Standard Deviation		1.297	

With respect to the benefits of implementing the redesigned processes, Table 4.8 presents the five expected benefits based on the rated scale mean in descending order. As the table shows, when universities' processes redesigned, more weights have been given to reduce the process cycle time, increasing service quality, and increasing customers' satisfaction, sequentially. However, cost reduction and increasing employees' satisfaction have not given much emphasis compared to the aforementioned benefits.

Table 4.8: Expected benefits of BPR

Expected benefits (n=40)	Mean	Sta. Deviation
Process cycle time reduction	4.30	.687
Increasing service quality	4.25	.870
Increasing customers' satisfaction	4.20	.939
Processes' cost reduction	3.83	.903
Increasing employees' satisfaction	3.83	1.083

Although the benefits of cost reduction and increasing employees' satisfaction have the same mean value (3.83), they differ in terms of their standard deviations (see Table 4.8).

This suggest that when universities' processes redesigned, cost reduction have been given much emphasis (i.e., .903 sta. deviation) than increasing employees' satisfaction (1.083 sta. deviation). Because the standard deviation of cost reduction is low compared to employees' satisfaction, thus it indicates that most of responses clustered around the mean.

Generally, universities incurred a lot of cost for their BPR project; however, they had been anticipated to offset the costs and to improve their performance when redesigned processes implemented. On the other hand, results presented in section 4.1.2 indicates that public universities had not realized the expected benefits, because the redesigned processes not substantially implemented (i.e., less than 40 percent of the redesigned processes implemented). The following subsection presents the causes for this problem.

4.1.4. BPR implementation challenging factors

Organizations used BPR to improve their performance by changing business processes radically and fundamentally, however, its implementation phase is the most challenging one. In connection with this, Attaran and Wood (1999) indicated five primary obstacles for effective BPR implementation, namely misunderstanding of BPR concept, misapplication of BPR term, lack of proper strategy, management failure to change, and failing to recognize the importance of people.

In addition, Al-Mashari and Zairi's (1999) article categorized five success and failure factors of BPR implementation with thirty-three and twenty-two items, respectively. The five successes and failure factors are change-management and culture, management competency and support, organizational structure, project planning and management, and IT infrastructure. The findings of Grover et al. (1995) also noted BPR implementation as complex, i.e., it involves many challenging factors. As the authors suggested, to succeed with BPR implementation, organizational change has to be essentially managed and balanced attention to be paid for management support and technological competence factors. As well as, factors that pertain directly to the conduct of the project (e.g., project

management and process delineation) have to be given emphasis for successful BPR implementation.

The above inductions highlighted that BPR implementation constrained by various challenging factor. The first phase of this study objective is to identify various challenging factors of BPR implementation in Ethiopian public universities. To address this objective and to answer research question 1, thirty items in part four of the survey instrument developed from various literatures, mostly from Grover et al. (1995) and Al-Mashari and Zairi (1999), using five-point Likert-type scales ('strongly agree' to 'strongly disagree). Hereunder, results and analysis of findings related to challenging factors of BPR implementation at universities presented.

To identify the challenging factors of BPR implementation among the thirty items, their relative severity were used. Thus, the thirty items responses in part four of the survey instrument ranked according to their rated percentage. In other word, the sum of respondents percentage who were either strongly agreed or agreed (i.e., 5 or 4 on a 5 point scale) with the items used. Using this method, Grover et al. (1995) also abled to rank the relative severity of sixty-four BPR implementation problems.

As Table 4.9 shows, 75 percent of respondents considered '*lack of creating organizational culture and values for change*' and '*problems related to rigid hierarchical structure, job definition, and responsibility allocation*' as the first challenging factors of BPR implementation at universities (both ranked first). As rated by 72.5 percent of respondents, the next challenging factor of BPR implementation was '*absence of incentive, training and education*'. As rated by 70 and 65 percent of respondents, the fourth and fifth challenging factors were '*lack of necessary changes in human resource policies*' and '*lack of leadership, commitment and support by senior management*', respectively.

Table 4.9: BPR implementation challenging factors rank

Rank*	Category**	Problems that affect BPR implementation	Percent*** (n=40)
1	CMF	Lack of creating organizational culture and values for change	75.00
1	OF	Problems related to rigid hierarchical structures, jobs definition, and responsibility allocation	75.00
3	CMF	Absence of incentive, training and education to cultivate the required values of redesigned processes	72.50
4	CMF	Lack of necessary changes in human resource policies for BPR implementation	70.00
5	TMSF	Lack of leadership, commitment and support by senior management	65.00
6	OF	Lack of organizational readiness to change prior to BPR project start	62.50
6	CF	Lack of financial resources	62.50
8	TMSF	Top management's insufficient understanding about BPR	60.00
9	TMSF	Top management fears to support the new values and beliefs required by the redesigned processes	57.50
9	ITF	Employees' and customers' know-how deficiency about the use of IT in the redesigned processes	57.50
9	CF	Existing proclamations, regulations, rules and directives of the country delayed BPR implementation	57.50
9	CF	Cascading of policies impede BPR implementation	57.50
13	CF	BPR considered as a passing managerial fancy (e.g., it will go away, ignore it)	55.00
14	TMSF	Top management does not change their value unlike the redesigned processes	52.50
14	CMF	Fears about political, economic, and organizational risks due to change initiative of BPR	52.50
14	BPRPMF	Insufficient trainings on BPR implementation and absence of consultants' advice to implement BPR	52.50
14	ITF	IT has significant role for the redesigned processes	52.50

Table 4. 9: Continued

Rank*	Category**	Problems that affect BPR implementation	Percent*** (n=40)
18	TMSF	Lack of total involvements of top management who have real power to change	47.50
19	OF	Existing infrastructures impede BPR implementation	42.50
20	BPRPMF	Employees and customers not openly and actively involved and consulted at all stages of BPR	40.00
20	ITF	Problems related to IT infrastructures investment and sourcing decision	40.00
20	ITF	Problems related to training provision about IT use in the redesigned processes	40.00
23	OF	BPR project initiatives not caused by the felt needs of change	35.00
24	BPRPMF	Ineffective redesign team members	30.00
25	CMF	Employees' resistance to change	27.50
25	OF	Larger organizational size impede BPR implementation	27.50
27	BPRPMF	Processes extremely redesigned	22.50
28	BPRPMF	Processes ineffectively redesigned	17.50
29	ITF	IT role not considered as enabler of BPR during redesign phase	15.00
30	CF	BPR cannot be applied in case of Ethiopian universities	12.50

* Items that have similar percentage, ranked similarly and the next rank number jumped
**TMSF= top management support factors; CMF= change-management factors; OF= organizational factors; BPRPMF= BPR project management factors; ITF= Information technology factors; CF= country factors.
*** The percentage of respondents who were either strongly agreed or agreed with the item as challenging factor of BPR implementation at universities.

Table 4.9 also shows that of the top five challenging factors of BPR implementation, three of them belong to change-management category. More than 70 percent of respondents showed a higher degree of agreement with these challenging factors to delayed BPR implementation at universities. Change-management emphasized by many researchers as a vital factor for BPR success/failure. For instance, Allen and Fiefield's (1999) study found that organizational culture, insufficient attention to the human resources side, and organizational structure significantly limited the degree of change

sought from BPR in UK higher education institutes. This study finding also showed that three of the top five challenging factors are in line with the first two findings of Allen and Fiefield (1999). In addition, over 52 percent of respondents either strongly agreed or agreed with all factors of change-management, except the factor of '*employees resistance to change*' (27.5 percent) as contributors to delay BPR implementation at universities.

With respect to top management support category, over 52.5 percent of respondents also showed a higher degree of agreement with four factors (see Table 4.9). Namely, '*lack of leadership, commitment and support by senior management*', '*top management's insufficient understanding about BPR*', '*top management fears to support new values and beliefs*', and '*top management does not change their value unlike the redesigned processes*' were considered as challenging factors of BPR implementation. The first three factors also ranked within top ten challenging factors. Confirming this, Kontio (2007) noted the essential role of management support for the success of BPR implementation at Turku University, because unless top managements supported the project, employees of the organization could lose their willingness on the project.

For the organizational factors category, two problems rated by over 62.5 percent of respondents (see Table 4.9), i.e., '*problems related to rigid hierarchical structures, jobs definition and responsibility allocation*' (ranked second) and '*lack of organizational readiness to change prior to BPR project start*' (ranked sixth). In the findings of Grover et al. (1995), rigid hierarchical structure ranked third and the authors claimed this problem to inhibit the change initiatives of BPR. With respect to lack of organizational readiness, Wu and Du (2010) claimed this factor as not only cause the project to fail, but also create problems to lose businesses, unless the organization ready to change.

All factors related to BPR project management ranked below 14 (see Table 4.9). 52.5 percent of respondents showed a higher degree of agreement to the factor of '*insufficient trainings on BPR implementation and absence of consultants' advice to implement BPR*'. In connection with this, Debela and Hagos's (2011) finding advocated the importance of consultants' advices and training provision for the success of BPR. However, in case of

this study, most of the respondents agreed with lack of trainings and advices to implement the redesigned processes that in turn impeded the implementation phase of BPR at universities.

Among the top ten challenging factors of BPR implementation, one of the IT category factor ranked at nine (see Table 4.9). That is, '*employees and customers know-how deficiency about the use of IT in the redesigned processes*' considered by 57.7 percent of respondents as the challenging factor to delay the implementation phase. That is why various literatures on BPR emphasized IT to be incorporated in the redesigned processes as enabler for better performance. Results for the items like '*significant role of IT*' (52.5 percent) and '*not considering IT as enabler*' (15 percent) showed that the redesigned processes of universities enabled by IT, while IT has significant role. However, Grover et al. (1995) study findings showed that IT correlated the least with BPR success. This indicates that universities might confront difficulties of IT related skills, but the existence of such problems might not impede the redesigned processes from implementation.

Three of the top ten challenging factors concern to the country factors category (see Table 4.9). Among the country factors, 62.5 percent of respondents regarded '*lack of financial resources*' as the most challenging factor. In connection with this, Al-Mashari and Zairi (1999) noted the importance of adequate budget and proper allocation of resources for the success of BPR, because large investment in new resources needed to implement the redesigned processes. Since Ethiopian public universities depend on government budget, it is evident that most of the respondents showed a higher degree of agreement with the factor of '*lack of financial resources*' to impede universities' redesigned processes from implementation. Next to this, 57.5 percent of respondents considered '*existing proclamations, regulations, rules and directives of the country*' as impediment for successful BPR implementation. Hence, BPR principles require old business processes' rules and assumptions breakdowns to redesign processes radically and fundamentally. Since Ethiopian public universities operate under the government rules and regulations, it is difficult to implement the redesigned processes unless the government amended its rules and regulation to accommodate BPR implementation. That

is why 57.5 percent of respondents considered existing rules and regulations of the country as challenging factor.

As indicated previously, BPR is a radical and fundamental change of existing processes. After the redesigned processes implemented, some performance measurement (e.g., Balanced Scorecard) and incremental improvement (e.g., TQM) management tools required (Al-Mashari and Zairi, 1999). However, it is evident that Ethiopian public universities lack BPR implementation and they were ordered to use Balanced Scorecard for their performance measurement. This highlighted that the existence of policy/program cascading nature and this can nurture uncertainty and resistance to future policies/program implementation. In these regard, 57.5 and 55 percent of respondents showed a higher degree of agreement with the factors of '*cascading of policies*' and '*considering BPR as a passing managerial fancy*'. These imply that before the actual policy/program implemented, universities engaged with another policy/program whether the prior policy/program adds value or not. As a result, uncertainty and resistance to future policies/programs implementations emanated.

To comprehend the relative severity of the thirty challenging factors of BPR implementation, average values calculated for each six-category factors based on the percentage value in column four of Table 4.9. The percentage value was calculated based on the respondents' degree of agreement, i.e., either strongly agree or agree (5 or 4 in 5 point scale). The percentage average values of the six-category factors in descending order are: 1) change-management factors (59.5 percent); 2) top management support factors (56.5 percent); 3) country factors (49 percent); 4) organizational factors (48.5 percent); 5) IT factors (41 percent); and 6) BPR project management factors (32.5 percent).

It is noticeable from the above average values that project specific factors (i.e., IT and BPR project management factors) ranked at bottom, while factors related to managing change initiative (i.e., change-management and top management support factors) ranked

at the top. In addition, factors originated from beyond the organization and the organization itself (i.e., country and organizational factors) ranked at the middle.

So far, results and analysis related to various challenging factors presented. The finding suggests that BPR implementation at universities were constrained by various challenging factors. As Table 4.9 shows, among the thirty challenging factors, 17 of them were rated by more than 50 percent of respondents as the most challenging factors. In the context of redesigned processes implemented at universities, these 17 factors were accounted to limit the extent between 11 to 40 percent. This also implies that the benefits expected from BPR were not adequately realized due to 17 challenging factors. Thus, the research question 2 answered in these regards. The following subsection also attempted to refine those challenging factors by universities type.

4.1.5. Further refinements of BPR implementation challenging factors

To add insight in to the profiles of challenging factors that impeded BPR implementation in Ethiopian public universities, this subsection attempted to refine various challenging factors based on universities type. Thus, this subsection tried to answer the sub research question 1, i.e., '*what are the challenging factors that affect BPR implementation at elder universities and new universities?*' As indicated in section 3.3, four universities were taken in this study. Of the four universities, two of them considered as elder universities (i.e., Addis Ababa University and Hawassa University) and the remaining two considered as newly established universities in Ethiopia (i.e., Samara University and Wollo University). Thus, to further refine the challenging factors of BPR implementation, respondents were dichotomized, i.e., Addis Ababa University and Hawassa University respondents grouped in to '*elder universities*' group, and Samara University and Wollo University respondents grouped in to '*new universities*' group.

To compare and analyze the groups' responses for the items in part 4 of the survey instrument, mean values were calculated based on the scores on a five-point scale (Likert scale). In addition, chi-square statistic along with significance level was used to see if both groups' respondents were responded different from each other. Since Likert-scale

questions have a range of answers that is discrete, not continuous, it was appropriate to use chi-square statistic, because it assumes a discrete distribution rather than a normal distribution (ITS, 2011). Hereunder, results and analysis of findings presented based on the six categories of BPR implementation challenging factors heading.

a. Top management support factors

According to Attaran (2000), BPR changes all aspects of a business, but more than changing jobs and skills, it forces changes in management style. As the author further noticed, it forces managers to reevaluate not only what they do, but also who they are because new processes require new management philosophy. Therefore, top management support is required for successful BPR implementation, otherwise implementing the redesigned processes could be a challenging endeavor. In connection with this, Table 4.10 presents the rated responses for the items related to top management support factors. Taking the mean values of each challenging factor, most of respondents from each group showed a higher degree of agreement with the five challenging factors. In other words, all items' mean values are above three, this indicates that most of respondents either strongly agreed or agreed with the items.

On the other hand, the significance column of Table 4.10 shows that respondents from both universities groups similarly rated the five factors (i.e., there is insignificant difference in the patterns of responses to the items among elder and new universities' respondents). This indicated that the five challenging factors related to top management support category contributed to delay the implementation of redesigned processes in both groups.

Generally, Table 4.10 evidenced that top management's total support and commitment, sufficient understanding of BPR concepts, and changing the entrenched values can help to implement BPR successfully. Otherwise, the existence of problems related to top management support could endanger the implementation phase; these were also the case for both universities groups.

Table 4.10: Top management support factors

Factors	University Group	Percent (Elder n=20, New n=20)					Mean	Chi-square	Sig.
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree			
Lack of leadership, commitment and support by senior management	Elder	0	20	25	45	10	3.45	4.003	.261
	New	0	10	15	40	35	4		
Top management's insufficient understanding about BPR	Elder	10	20	20	40	10	3.2	3.175	.529
	New	0	15	15	50	20	3.75		
Top management fears to support the new values and beliefs required by the redesigned processes	Elder	15	15	20	40	10	3.15	3.725	.444
	New	0	15	20	45	20	3.7		
Lack of total involvements of top management who have real power to change	Elder	15	10	30	30	15	3.2	2.763	.598
	New	5	25	20	35	15	3.3		
Top management does not change their value unlike the redesigned processes	Elder	10	20	25	30	15	3.2	1.355	.852
	New	10	10	20	35	25	3.55		

b. Change-management factors

As Debela and Hagos (2011) indicated, BPR by itself is a change project that needs to be managed appropriately. Therefore, the change initiative of BPR requires adequate risk management (for instance, economic, political, organization and employees' resistance risk management), creating a culture of change and new values, and developing policies and strategies for new processes. In connection with this, Table 4.11 shows the rated responses for the items related to change-management factors for both groups.

As the mean values column of Table 4.11 shows, except the factor of '*employees' resistance*', most of respondents from each group maintained a higher degree of agreement to all challenging factors of BPR implementation. That is, four challenging factors on average rated above three, while '*employee's resistance to change*' on average rated at 2.55 and 2.8 by elder and new universities respondents, respectively. These indicate that to implement the redesigned processes, problems related to change-management contributed to delay the implementation, while '*employees' resistance*' not contributed to delay the implementation.

Both groups' respondents were responded in similar patterns to the items, i.e., there were insignificance differences in the pattern of responses between both groups. Thus, for both groups, each challenging factors had similar impact (see Table 4.11 significance column) on the project.

Among the five challenging factors of change management, the pattern of responses for factor of '*absence of incentive, training and education to cultivate required values of redesigned processes*' is surprisingly insignificant between the groups and scored high mean value (see Table 4.11). In line with this finding, Mengesha and Common (2007) finding also claimed that nonexistence of appropriate rewards and motivational instruments in Ethiopian public organizations caused to sluggish BPR change initiatives.

In addition, Debela and Hagos's (2011) study finding indicated that employees' resistance was not strong during BPR implementation at the case studies of four

Table 4.11: Change-management factors

Factors	University Group	Percent (Elder n=20, New n=20)					Mean	Chi-square	Sig.
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree			
Fears about political, economic, and organizational risks due to change initiative of BPR	Elder	10	15	25	50	0	3.15	5.117	.276
	New	5	20	20	35	20	3.45		
Lack of creating organizational culture and values for change	Elder	0	15	10	60	15	3.75	2.015	.733
	New	5	15	5	50	25	3.75		
Employees' resistance to change	Elder	20	40	15	15	10	2.55	2.668	.615
	New	15	25	30	25	5	2.80		
Lack of necessary changes in human resource policies for BPR implementation	Elder	15	5	15	55	10	3.40	4.476	.345
	New	0	5	20	50	25	3.95		
Absence of incentive, training and education to cultivate required values of redesigned processes	Elder	5	15	10	40	30	3.75	1.713	.788
	New	0	10	15	50	25	3.90		

public organizations of Ethiopia. In line with this, the present study also finds employees' resistance to change not contributed to impede redesigned processes from implementation in both groups.

c. Organizational factors

As Wu and Du (2010) noted, prior to BPR project undertaken, organizations must be carefully think the necessity of BPR to determine their readiness to change. If BPR project begin due to the felt needs of changing the old processes for improved performance, organizations can quickly change the old processes with new processes. In addition, to implement new processes successfully, new organizational structures, jobs definition and responsibility allocations, and infrastructures adjustments are required.

Table 4.12 presents the results for the five organizational factors and their statistical summaries. Considering the mean values for each item and the pattern of responses between the two groups, it is interesting to note that differences exist among elder universities and new universities in case of organizational factors than the previously presented two factors categories. With the factor, i.e., '*lack of organizational readiness to change*', both universities groups' respondents rated on average above three. Organization's readiness to change helps in determining the capabilities that the organization possessed to implement BPR initiatives, which requires change in a cultural, human resource, financial or technological standpoint (Ahmad et al., 1999). Thus, it is critical to assess organizational readiness prior to the project start. However, this was not the case, because the mean value (above 3) for this factor indicates that most of respondents showed a higher degree of agreement that their universities were not ready to change prior to the project started, which in turn resulted to impede redesigned processes from successful implementation.

To implement new processes, Wu and Du (2010) indicated to consider organizational size and historical factors. As the authors suggested for organizations those are larger or have more long time history, gradual method should be taken to implement new processes, because they have more rigid and complex organizational structures and business processes, whereas smaller size organizations should take a revolutionary

Table 4.12: Organizational factors

Factors	University Group	Percent (Elder n=20, New n=20)					Mean	Chi-square	Sig.
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree			
Lack of organizational readiness to change prior to BPR project start	Elder	0	35	10	45	10	3.30	1.22	0.75
	New	0	20	10	55	15	3.65		
BPR project initiatives not caused by the felt needs of change	Elder	30	20	15	25	10	2.65	9.55	0.05*
	New	0	25	40	15	20	3.30		
Larger organizational size impede BPR implementation	Elder	10	55	0	20	15	2.75	8.14	0.09**
	New	20	40	20	20	0	2.40		
Existing infrastructures impede BPR implementation	Elder	5	35	30	20	10	2.95	6.93	0.14
	New	20	15	10	40	15	3.15		
Problems related to rigid hierarchical structures, jobs definition, and responsibility allocation	Elder	5	10	25	45	15	3.55	8.56	0.07**
	New	10	0	0	65	25	3.95		

*significant at $p = 0.05$ level of significance; ** significant at $p = 0.10$ level of significance
p = refers to probability

implementation method. In connection with this, both groups' respondents rated the factor, i.e., '*problems related to rigid hierarchical structures, jobs definition, and responsibility allocation*' on average above three, but there exist significant difference in terms of response patterns between the two groups. The mean values rated by elder and new universities' respondents are 3.55 and 3.95, respectively (see Table 4.12). These values can raise question, because rigid hierarchical structure believed to exist in elder universities than new ones. However, since newly established universities of Ethiopia adopted their ways of doing businesses from elder universities, such a rigid hierarchical structure also exist in newly established universities. Generally, factors like rigid hierarchical structure impeded the implementation of redesigned processes in both groups.

As indicated above, the other notable factor is needs for change. Most of elder universities respondents either strongly disagreed or disagreed (mean value of 2.65) with the factor i.e., '*BPR project initiatives not caused by the felt needs of change*', while most of new universities respondents showed a higher degree of agreement (mean value of 3.3) with the factor (see Table 4.12). These results also statistical significant at $p = 0.10$ level of significance. In this case, it implies that new universities' respondents might consider their universities' being a recently established one that cannot afford the change initiatives of BPR. However, it was earlier noted that all new universities of Ethiopia adopted the ways of doing business from elder universities, as a result problems existed in elder universities also exist in new universities.

With respect to the factor of '*large organizational size*', respondents of both universities groups either strongly disagreed or disagreed (below mean value of 3), but there was a significant differences in terms response patterns among the groups to the item. Even though Wu and DU (2010) indicated to consider organizational size during the implementation phase, the earlier work of Attaran (2000) claimed that, the difference between success and failure of BPR not depend on organizational size or resources, but on appropriate planning and avoidance of pitfalls. Thus, in line with Attaran (2000)

assertions, this study finding also evident that organizational size had no impact to implement the redesigned processes in both groups.

The other organizational factor is '*existing infrastructure*'. Most of respondents from elder universities were either strongly disagreed or disagreed (a mean value of 2.95) with this challenging factor. On the other hand, respondents from new universities were either strongly agreed or agreed (a mean value of 3.15) with the factor. Therefore, it is evident that elder universities' infrastructures not impeded the implementation of redesigned processes, whereas new universities' infrastructures posed problems to implement the redesigned processes. This also indicates the fact that new universities infrastructures provided by MoE, whereas elder universities acquires their infrastructures themselves. Thus, the mandates of MoE for new universities posed problems to implement the redesigned processes due to the inflexibilities of infrastructures.

d. BPR project management factors

Table 4.13 presents the results related to BPR project management factors for elder and new universities. To succeed with BPR implementation, active and strong organizational communication at all stage of BPR project required with different stakeholders of the organization. As the table shows, the item, i.e., '*employees and customers not actively and openly involved and consulted at all stages of BPR*', rated on average 2.7 and 3.2 by elder and new universities' respondents, respectively. Thus, it was apparent that new universities' employees and customers were not actively and openly involved on the project, while the reverse was true for elder universities.

The other project management factors are designing effective, efficient and economical processes for the organization. These could be achieved when the redesign team members were interdisciplinary. In connection with this, Allen and Fiefield's (1999) finding indicated that the purpose of establishing interdisciplinary teams to work on BPR project of NW (anonymous) University were two-fold: first, the team members could take an overall perspective of their particular area; secondly, team members abled to consult widely with various groups of people involved in the process, to gain a diagnosis

Table 4.13: BPR project management factors

Factors	University Group	Percent (Elder n=20, New n=20)					Mean	Chi-square	Sig.
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree			
Employees and customers not openly and actively involved and consulted at all stages of BPR	Elder	10	45	15	25	5	2.70	1.959	.743
	New	5	30	15	40	10	3.20		
Processes extremely redesigned	Elder	5	45	35	15	0	2.60	5.419	.247
	New	20	25	25	20	10	2.75		
Processes ineffectively redesigned	Elder	20	45	20	15	0	2.30	.286	.963
	New	15	45	20	20	0	2.45		
Ineffective redesign team members	Elder	15	50	20	10	5	2.40	4.810	.307
	New	15	25	15	30	15	3.05		
Insufficient trainings on BPR implementation and absence of consultants advice to implement BPR	Elder	10	25	20	35	10	3.10	6.642	.156
	New	5	30	5	20	40	3.60		

of the situation. The same thing also found in this study. That is, most of the respondents from both groups were either strongly disagreed or disagreed with the factors of '*processes extremely redesigned*' and '*ineffectively redesigned*' (between mean values of 2.75 and 2.3, see Table 4.13). However, most of new universities' respondents showed a higher degree of agreement, on average, 3.05 point given for the factor of '*ineffective redesign team members*', but elder universities respondents showed a higher degree of disagreement (2.4 mean value) to the factor. This could be accounted to the fact that most of newly established universities of Ethiopia lack experienced employees compared to elder universities, that resulted to have ineffective team members in new universities.

With respect to the factor of '*lack of training and absence consultants' advice*', most of respondents demonstrated a higher degree of agreement to the factor as barrier for successful implementation. Generally, for the items included in BPR project management categories, there are insignificant response pattern differences between the two groups' respondents (see Table 4.13, significance column).

e. IT factors

As O'Neill and Sohal (999) noted, the common theme running through BPR or breakthrough improvements is technology, in particular IT. However, the authors noted that BPR is not necessarily depends on IT solutions. IT considered as enabler of the redesigned processes, because instead of automating the processes by IT, BPR principles require to design the processes in simplified ways. Having this, Table 4.14 shows the results related to IT factors for both universities groups.

As the table shows, most of the respondents manifested a higher degree of agreement with IT as enabler of the redesigned processes. In other word, with a mean value approximately 2, both groups' respondents disagreed with the factor of '*IT role not considered as enabler of BPR during redesign phase*'. However, IT had a significant role for elder universities' processes (3.55 mean value) compared to new universities (2.9 mean value). This indicates that unless elder universities had invested on IT infrastructures and provided trainings on IT use, change through BPR could not occur. Mean value of 3.55 for elder universities about significant role of IT in the processes

Table 4.14: IT factors

Factors	University Group	Percent (Elder n=20, New n=20)					Mean	Chi-square	Sig.
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree			
IT role not considered as enabler of BPR during redesign phase	Elder	30	40	20	10	0	2.10	1.172	.760
	New	35	30	15	20	0	2.20		
IT has significant role for the redesigned processes	Elder	5	20	10	45	20	3.55	3.104	.541
	New	15	35	10	25	15	2.90		
Problems related to IT infrastructures investment and sourcing decision	Elder	20	25	20	25	10	2.80	1.191	.880
	New	15	30	10	30	15	3.00		
Employees' and customers' know-how deficiency about the use of IT in the redesigned processes	Elder	0	20	20	50	10	3.50	.595	.897
	New	0	15	30	45	10	3.50		
Problems related to training provision about IT use in the redesigned processes	Elder	5	30	30	35	0	2.95	3.091	.543
	New	0	30	25	35	10	3.25		

also indicates their complex information requirements, because elder universities have numerous departments or units that require information sharing among them and information integration compared to new universities.

Although elder universities considered the use of IT significantly in the redesigned processes, most of respondents from elder universities demonstrated nonexistence of problems related to '*IT infrastructures investment and sourcing*' for the redesigned processes. Whereas, new universities respondents' response distributions showed that they were neither disagreed nor agreed with this factor, i.e., mean value of 3 (see Table 4.14). Thus, it is difficult to say that new universities were confronted problems in the area of '*IT infrastructures investment and sourcing*'.

With respect to '*know-how deficiency about IT use*', both universities' respondents manifested a higher degree of agreement. As Table 4.14 shows, the mean value of this factor is the same (i.e., 3.5) for both groups. However, its severity weighted to elder universities than new universities, because elder universities' redesigned processes significantly relied on IT (mean value of 3.55) compared to new universities (mean value of 2.9). On the other hand, problems related to '*training provision about IT use*' were immaterial to elder universities compared to new universities. This can be accounted to the fact that elder universities accommodated experienced IT experts, as such training provision were not their problems. Generally, there were insignificant differences in the pattern of responses between the two groups' respondents.

f. Country factors

The last challenging factors category in this study is country factors. Table 4.15 presents the results related to country factors. As it was indicated in subsection 4.1.4, Ethiopian public universities depend on government budget, operate under various rules and regulations that govern public organization and implement government policies/programs. In connection with these, various problems raised to implement the redesigned processes of universities. Most of both universities groups' respondents showed a higher degree of agreement with the item of '*existing proclamations, regulations, rules and directives of the country delayed BPR implementation*'. Thus,

Table 4.15: Country factors

Factors	University Group	Percent (Elder n=20, New n=20)					Mean	Chi-square	Sig.
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree			
Existing proclamations, regulations, rules and directives of the country delayed BPR implementation	Elder	10	20	30	30	10	3.10	6.677	.154
	New	5	10	10	35	40	3.95		
Lack of financial resources	Elder	20	5	25	35	15	3.20	7.952	.093*
	New	0	15	10	40	35	3.95		
Cascading of policies impede BPR implementation	Elder	5	5	30	55	5	3.50	5.540	.236
	New	0	25	20	40	15	3.45		
BPR considered as a passing managerial fancy (e.g., it will go away, ignore it)	Elder	5	30	25	30	10	3.10	7.667	.105
	New	5	0	25	50	20	3.80		
BPR cannot be applied in case of Ethiopian universities	Elder	55	30	10	5	0	1.65	5.069	.280
	New	25	40	15	10	10	2.40		

*significant at $p = 0.10$ level of significance
p = refers to probability

unless existing rules and regulations of the country amended to accommodate BPR principles, this item considered as challenging factor to implement redesigned processes successfully.

With respect to '*lack of financial resources*', both universities groups' respondents considered this problem as impediment to successful BPR implementation. However, as the significance column of Table 4.15 shows, this problem was more decisive to new universities. Thus, the mean value of 3.95 for new universities indicates that they were suffered from lack of financial resources to implement the redesigned processes; while elder universities mean value of 3.2 indicates that they were in a better position in terms of financial resources to implement the redesigned processes. This indicates the fact that elder universities have influence to get favorable budget from government and their abilities to generate funds from donors and business activities compared to new universities.

For the factor, i.e., '*cascading of policies*', most of respondents from both groups showed higher degree of agreement (see Table 4.15). This problem also nurtures future policies/programs implementation failure, because before the fruits of BPR exhibited, adding another program (e.g., Balanced Scorecard) would create frustrations. That is why most of respondents considered BPR as a managerial fancy (above a mean value of 3). Despite the fact that lack of implementing the redesigned processes existed in Ethiopian public universities, most of respondents believed BPR applicability in Ethiopian public universities. Generally, factors related to country specific impeded BPR implementation at universities, but lack of financial resources were severe to new universities compared to elder universities.

To sum up, the above findings suggest that most of the challenging factors of BPR implementation were common to elder universities and new universities. Specifically, top management factors and change-management factors, except employees' resistance, were common challenging factors to both groups BPR implementation. In the organizational factors category, problems originated from lack of organizational readiness and organizational structures were common to both groups, though the latter one was

significant to new universities. On the other hand, problems originated from engaging with BPR project without the felt needs of change and existing infrastructures were challenging factors to new universities, but they were not to elder universities.

In the category of BPR project management factors, insufficient trainings and absence of consultants' advice about BPR implementation was common to both groups. On the other hand, lack of communication with employees and customers at all stages of BPR and ineffective redesign team members were not challenging factors to elder universities, but they were to new universities. Among the five IT factors, employees' and customers' IT use know-how deficiency was the common problems to both groups. Although elder universities were not challenged to provide IT related trainings, their redesigned processes were relied significantly on IT, whereas the reverse was true to new universities. Despite the fact that the consensus of BPR applicability in Ethiopian public universities, the four country specific factors were common challenging factors to both groups, while lack of financial resource was significant to new universities.

4.2. Results and analysis: qualitative future of mixed method

The preceding section has presented the results and analysis of findings for the first phase (quantitative) of the study. This section then used the identified factors i.e., challenging factors of BPR implementation in Ethiopian public universities. As it was indicated in section 1.3, the objective of this second phase of the study was to better understand the magnitude of the identified factors. To address this objective and to answer research question 3 and 4, interviews were held with Ethiopian Ministry of Education officer for Higher Education Capacity Building, Ethiopian Higher Education Strategic Center officer, and Ex-Vice President of ABC (anonymous) University (Ethiopian public university). These respondents were selected purposefully, because it was believed that they have had better knowledge about BPR project of universities. Thus, the researcher interviewed three interviewees on the issues related to BPR implementation challenging factors magnitudes in case of Ethiopian public universities.

Results from the first phase showed that BPR project still being implemented at universities, i.e. most of respondents perceived that 11 to 40 percent of the redesigned processes implemented at universities. For this reason, more than 50 percent of respondents claimed seventeen challenging factors of BPR implementation (of the thirty) as impediments for successful BPR implementation.

As it was noted in the first phase, challenging factors of BPR implementation have been grouped in to six categories, namely top management support factors, change-management factors, organizational factors, BPR project management factors, IT factors, and country factors. Thus, the results and analysis of findings for the second phase of the study, thematically presented hereunder based on the six categories headings.

a. Top management support factors

Although all public universities of Ethiopia finished process-redesigning phase of BPR, implementing the redesigned processes pointed as a difficult phase for most universities. As the interviewee noted, the management body of universities' had exerted significant potential when their respective universities conducted the redesigning phase of BPR, however, after the processes being redesigned, the implementation phase totally lacked support and commitment from top management. Because all universities had placed their first agenda on BPR project during redesigning phase, whereas implementing the redesigned processes had not been their first agenda. As the interviewee commented:

> '*Unless top management of universities totally supported and committed by providing the necessary time, financial and other resources, implementing the redesigned processes could be unthinkable. Without top management willingness for the project, implementing BPR could be unlikely.*'

On the other hand, to daunt the status quo of the organization, BPR principles require new values and beliefs for the redesigned processes. However, two interviewees claimed that top management's fears about new values and beliefs required by BPR as the major cause to delay the implementation phase. In line with this view, Reyes (2001) noted about government organizations' change initiatives like any deviation from the status quo

considered as a threat. Debela and Hagos (2011) finding also confirmed that implementing BPR in public organization of Ethiopia accompanied by doubt, skepticism, and fear of losing the status quo.

With respect to insufficient understanding of BPR concepts by top management, one interviewee suggested this problem to contribute to delay the implementation phase. However, the interviewee claimed that most of top managements were familiar with BPR concepts, even though they were busy with various activities of their universities. In this case, it is evident that top managements' being busy could cause to lose their active support and commitment to the project that in turn leads to delay the implementation unless they have given their full insight to the project.

Generally, lack of support and commitment by top management and their fear about new values and beliefs required by BPR were the most challenging factors to implement the redesigned processes successfully. Thus, these problems seem to as earlier indicators to delay the implementation of redesigned processes in Ethiopian public universities.

b. Change-management factors

BPR recognized as redesigning of processes and implementing them into the organization for dramatic performance improvement. As such, it needs adequate change-management actions to transform the organization's old business processes to a new one. In connection with this, Corran and Bryan (2010) indicated that successful change management focuses on communicating, motivating and establishing processes that primarily put the people who must undertake the processes at their forefront.

However, findings in the first phase of this study showed that redesigned processes of universities lack implementation and for this problem, various factors of change-management contributed. As one interviewee considered, change-management factors are the most challenging factors compare to others and that inevitably exist at all public universities of Ethiopian. This indicates that unless various change-management factors appropriately handled, implementing BPR in Ethiopian public universities disposed to failure.

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The other interviewee also agreed with the above discussion. Hence, the interviewee argued that creating a culture of change in Ethiopian public universities is difficult, because most universities considered themselves as a center of excellence. In connection with this, Allen and Fifield (1999) mentioned that inertia and reluctance to change were the problems to implement BPR in UK higher education. When change initiatives of BPR introduced in Ethiopian public universities, inertia and reluctance to change also manifested by just considering themselves as a center of excellence that in turn initiated problems to create a culture of change. It is also clear from the findings of the first phase of this study, most of respondents agreed with the problems related to creating a culture of change. Supporting this, interviewees stressed how a culture of change influenced BPR implementation.

On the other hand, to create a culture of change and to implement the redesigned processes, teamwork needed. However, teamwork could not be exercised in the absences of incentive, training and appropriate human resource policies. As the interviewee claimed, these problems also existed in Ethiopian public universities and contributed to delay BPR implementation.

Interviewees have not given much emphasis on problems related to fears emanated from political, economic, and organizational risk. As one interviewee commented:

> '*Unless universities implemented the entire processes, risks could not have significant impact on the organization, including employees' resistance to change.*'

Generally, the findings show that problems to create a culture of change, absence of incentive, training, and appropriate human resource policies were the fundamental challenging factors in the change-management category. However, fears about risk management due to the change initiatives of BPR and employees' resistance to change were not the fundamental challenging factors for the success of BPR implementation in Ethiopian public universities.

c. Organizational factors

Flexible organizational structures noted by various authors (e.g., Ahmad et al., 2007; Allen and Fifield, 1999; Al-Mashari and Zairi, 1999) as a receptive for change. Specifically, Hammer and Champy (1993) suggested that to ensure successful fundamental change using BPR, it is necessary to change the organizational structure of the organization. However, as Allen and Fifield (1999) indicated, the autonomous nature of various departments or units of higher educations, disrupt any change in the organizational structures. In line with this, interviewees also claimed that problems related to rigid organizational structures, jobs definition and responsibility allocation in Ethiopian public universities caused to delay BPR implementation, because the autonomous nature of various departments or units in universities could not allow the dictation of actions from top management.

All interviewees also remarked the fact that lack of organizational readiness to change existed prior to BPR project started at universities. As it was mentioned in the change-management factors category, lack of creating a culture of change had been blamed by interviewees' as a fundamental challenging factor of BPR implementation. This also indicates that universities were not ready to use BPR as a performance enhancement tool prior to engaged with the project. Thus, lack of organizational readiness considered as a challenging factor for successful BPR implementation.

On the other hand, one interviewee acknowledged the fact that BPR project initiative of universities not caused by the felt needs; rather it was a compulsory order by MoE. However, universities had believed their poor performance or for better performance and engaged with BPR project, even though the implementation phase challenged with various factors. In this regard, the other interviewee commented that:

> *'Although MoE ordered (initiated from top to down) public universities to undertake BPR project, the need of transformation in Ethiopian higher education is absolute. Since public universities operated under MoE and depend on government budget, thus, MoE order was appropriate.'*

With respect to problems originated from larger organizational size and existing infrastructures, all interviewees denied these challenging factors as impediments for successful BPR implementation. As interviewee commented:

> *'Since BPR used to change business processes of universities, infrastructures have to be in line with the redesigned processes. However, those redesigned processes that only change the old processes without infrastructure adjustments could be implemented, instead of pointing upon organization size and infrastructures.'*

Generally, in the organizational factors category, the severities of problems related to rigid organizational structure, jobs definition and responsibility allocation and lack of organizational readiness were significant on the implementation phase of BPR compare to other organizational factors.

d. BPR project management factors

According to Al-Mashari and Zairi (1999), successful BPR implementation is highly dependent on an effective project management. This is due to the fact that unless processes effectively redesigned, implementing ineffective processes leads to lose businesses. Thus, to redesign processes effectively, the project needs establishing interdisciplinary redesign team members. However, establishing only interdisciplinary redesign team members could not guarantee this, it needs adequate consultation, communication with employees and customers, commitment and support by top management and so on.

Having this, results from the first phase showed that, of the thirty challenging factors of BPR implementation, all five factors of BPR project management ranked below 14 (see Table 4.9). In addition, of the five factors of BPR project management category, only the factor, i.e., '*insufficient trainings on BPR implementation and absence of consultants' advice to implement BPR*' rated by over 50 percent of respondents as impediments of successful BPR implementation and others factors were rated by below 40 percent of respondents. Hence, all interviewees contend that none of all factors related to BPR

project management, including insufficient trainings and absence of advice, were the problems of universities to implement the redesigned processes. As one interviewee claimed:

> *'Most universities redesign team members were interdisciplinary, experienced and committed for the project. In addition, they had taken training on BPR and they were enthusiastic about BPR.'*

Since BPR used to improve organization's performance dramatically, processes fundamentally and radically redesigned. Thus, as one interviewee stressed, universities' processes neither extremely nor ineffectively redesigned, because BPR by nature is a fundamental and radical change in processes. In addition, the same interviewee claimed that employees and customers were adequately involved during processes redesigned, because BPR principles require that employees and customers inputs to be incorporated during designing phase. As the interviewee noted:

> *'If universities believed that their processes redesigned extremely, they must had to set parameters of effective redesign methodology. However, this was not the case; redesign team members had listened employees' and customers' opinions and redesigned effective processes for their universities.'*

Generally, in views of interviewees, none of all BPR project management factors were problems that delayed the implementation of redesigned processes at universities. Instead, other factors that were not belong to this category contributed to delay the implementation phase.

e. IT factors

As Corran and Bryan (2010) indicated, the more complex an organisation, the more apparent is the need for a system to pull together overall operational processes. As a result, the system helps to integrate and disseminate information for various units of the organization. To achieve the intended objectives of BPR, the integration of IT needed in

the redesigned processes. However, the integration of IT have to be considered as enabler, rather than automating the processes by using IT.

All interviewees believed that IT considered as enabler when universities' processes redesigned, however, significantly incorporating IT in the redesigned processes created problems to implement. Because IT needs huge investments starting from software and hardware acquisitions and installations to IT related trainings and maintenance provisions. However, one interviewee claimed that since universities have fund-generating office, these problems could not be attributed to delay the implementation. Similarly, the finding of Grover et al. (1995) indicated that difficulty in obtaining IT-related skills and infrastructures to implement the redesigned processes, but the lack of such problems would by no means guarantee project success.

In addition, one interviewee noted that lack of skills by employees and customers to use IT in the redesigned processes could obstruct the implementation, because universities processes redesigned in view of significantly integrating IT in the processes. However, the interview revealed that employees and customers know-how deficiency about IT use could not be considered as challenging factors to implement the redesigned processes. As interviewee commented:

> *'...because employees and customers (i.e., students) could be familiarized with IT use if IT skill trainings provided to them.'*

Generally, interviewees stressed that IT related factors could not obstruct universities to implement the redesigned processes, because IT helps to enable processes and to integrate various departments or units of universities that in turn reduce processes' cost and cycle time.

f. Country factors

It was indicated that to redesign processes fundamentally and radically, BPR principles require breakdowns of old processes' rules and assumption. In addition, adequate financial resources are important for successful implementation of BPR, and after

implementation, other supporting tools and techniques (e.g., Balanced Scorecard and TQM) integrated with BPR. However, these were not the cases for Ethiopian public universities. As indicated in the first phase, of the forty respondents, over 55 percent of respondent rated four challenging factors related to the country factors category as impediments of successful BPR implementation in Ethiopian public universities. In line with this, interviewees also agreed that, except the problem originated from lack of financial resources and considering BPR as a managerial fancy, the other two factors caused to delayed the implementation phase of BPR.

One interviewee noted about the existence of contradiction between existing rules and regulations of the country and the redesigned processes' requirements. In other word, processes of the universities redesigned without considering the existing rule and regulation of the country. Accordingly, implementing the redesigned processes was a difficult proposition. As interviewee indicated among the contradictions:

> *'... almost all universities redesigned their student recruitment process to recruit students themselves, however in the presence case of Ethiopia, MoE assigns students to each university.'*

During the interview, one emerging question raised, i.e., '*why support processes of universities considered as the most challenging to implement compared to core processes?'* As the interviewee commented:

> *'Most support processes require amendments of various rules and regulations (e.g., government organization procurement and expenditure regulations, budget allocation because universities need block budget, and salary and incentive rules) compared to core processes (e.g., students recruitment rule).'*

In addition, interviewees claimed that cascading of policies manifested when universities were ordered to use Balanced Scorecard before they entirely implemented the redesigned processes. This can create a problem to consider BPR as a managerial fancy. However,

one interviewee denied this and acknowledged the fact that BPR in other public organization of Ethiopia had been implemented and most organization (for instance, Commercial Bank of Ethiopia) had achieved the intended objectives of BPR. Inductively, it can be said that BPR can be applied in Ethiopian public universities.

With respect to lack of financial resources, earlier it was discussed in the IT factors. That is, since universities abled to generate funds themselves, in addition to government budget allocations, this problem could not be regarded as challenging factor to delay the implementation, rather lack of commitments to raise funds. In the context of obtaining resources, all interviewees acclaimed as obstacles due to none standing out universities, except some universities, attempted to raise funds for their BPR project.

In general, existing rules and regulations of the country and cascading of policies were the major causes in the country factors category to delay the implementation. However, lack of financial resource and considering BPR as a managerial fancy were not the factors that led to delay the implementation phase. Hence, BPR applicability in Ethiopian public universities claimed to be possible if universities mitigate with the aforementioned challenging factors.

To sum up the findings, results in the second phase revealed that not all seventeen factors that were identified in the first phase contributed to delay the redesigned processes from implementation. Based on the findings of the second phase, the magnitudes of top management factors (i.e., '*lack of leadership, commitment and support by senior management*' and '*top management fears of new values and beliefs*'), change-management factors (i.e., '*lack of creating organizational culture and values for change*', '*absence of incentive, training and education*', and '*lack of necessary changes in human resource policies*'), organizational factors (i.e., '*problems related to rigid hierarchical structures, jobs definition, and responsibility allocation*' and '*lack of organizational readiness to change*'), and country factors (i.e., '*existing proclamations, regulations, rules and directives of the country*' and '*cascading of policies*) were severe to implement the redesigned processes successfully in Ethiopian public universities.

Chapter 5: Conclusions

So far, results and analysis of findings presented for the first phase (i.e., quantitative) and second phase (qualitative) of this study. The purpose of this last chapter is to present summaries of major findings, concluding remarks, implications of the study, and to highlight future research directions on the topic. Thus, the first section presents the study's major findings summaries. The second section presents conclusions. The third section present discussions about the implications of the thesis. Finally, section four presents the study's significance and delimitation along with its contribution to the literature and future research directions.

5.1. Summaries

Using a sequential explanatory mixed method design, this study attempted to achieve its objectives. The objective of the first phase of this study was to identify various challenging factors of BPR implementation in Ethiopian public universities. To achieve this objective, survey was conducted in four universities. Forty BPR project redesign and implementation team members in the universities were subjects of the study. On the other hand, the objective of the second phase was to better understand the magnitude of the identified factors in the first phase. To achieve this objective, interviews were held with three interviewees. Hereunder, both phases' summaries of major findings synchronously presented.

Findings in the first phase of the study showed that most of respondents perceived their universities implemented the redesigned processes between 11 to 40 percent. This indicates that about 60 percent of the redesigned processes were not implemented at universities. Hence, to implement the redesigned processes at universities, most of respondents (55 percent) believed that the implementation phase to take more than three years. Although BPR literature not indicated the appropriate period that the implementation phase should take, it is evident from the finding that implementing the redesigned processes at universities was time taking endeavor. Thus, universities' redesigned processes being lacked implementation. The study also found that support

processes (i.e., administrative processes) of universities as the most challenging process to implement compared to core processes (i.e., academic processes). In this case, result obtained from the interviews in the second phase of the study showed that most support processes requires amendments of various rules and regulations of the country compared to core processes. Thus, implementing support processes could be difficult unless existing rules and regulations of the country amended in line with the redesigned processes requirements.

As the first phase findings showed, huge costs incurred on BPR project of universities, nevertheless, the benefits gained from the project outweigh the costs when universities implemented their redesigned processes. However, universities were not realized the benefits of BPR, because the implementation phase of BPR has been confronted with various challenging factors. To identify the challenging factors of BPR implementation, thirty factors were incorporated in part 4 of the survey instrument and respondents rated each item using five-point Likert scale ('strongly agree' to 'strongly disagree').

As it was presented in Table 4.9, more than 50 percent of respondents showed a higher degree of agreement with seventeen challenging factors of BPR implementation. These seventeen challenging factors in descending order are: (1) lack of creating organizational culture and values; (2) problems related to rigid hierarchical structures, jobs definition and responsibility allocation; (3) absence of incentive, training and education; (4) lack of necessary changes in human resource policies; (5) lack of leadership, commitment and support by senior management; (6) lack of organizational readiness to change; (7) lack of financial resources; (8) top management's insufficient understanding about BPR; (9) top management fears to support new values and beliefs; (10) employees' and customers' IT use know-how deficiency; (11) existing proclamations, regulations, rules and directives of the country; (12) cascading of policies; (13) considering BPR as a passing managerial fancy; (14) top management not change their value; (15) fears about political, economic, and organizational risks; (16) insufficient trainings on BPR implementation and absence of consultants' advice; and (17) significant role of IT.

Thus, in view of the survey respondents, the aforementioned seventeen factors limited the percentage of redesigned processes implemented at universities between 11 to 40 percent. However, findings of the second phase showed that not all of the seventeen factors challenged universities to implement the redesigned processes.

In the first phase, the study found that most of the challenging factors were common to elder universities and new universities and sometimes the severities of the challenging factors varied between the two groups. For instance, elder and new universities' respondents similarly rated all factors related to top management support. According to the mean values of the five top management support factors, most of respondents showed a higher degree of agreement with all factors as challenging to implement the redesigned processes. However, results from the second phase of the study emphasized that only the severities of two factors magnitude to challenge the implementation phase were decisive. The two factors are '*lack of leadership, commitment and support by senior management*' and '*top management fears about new values and beliefs required by the redesigned processes*'.

For change-management factors, elder and new universities' respondents also rated all factors similarly. Taking the mean values for the five change-management factors, all of them, except '*employees' resistance*', were agreed by the two groups respondents. Results in the second phase also confirmed that, except '*employees' resistance*' and '*fears about political, economic, and organizational risks*', all factors magnitude to obstruct the implementation phase were significant. These factors are '*lack of creating organizational culture and values for change*', '*absence of incentive, training and education*', and '*lack of necessary changes in human resource policies*'.

The severities of organizational factors differ among elder and new universities. Comparing the mean values and the pattern of responses for the factor of '*BPR project initiatives not caused by the felt needs of change*', indicates that it was significant to new universities than elder universities. Although both universities group respondents considered the factor, i.e., '*problems related to rigid hierarchical structures, jobs*

definition, and responsibility allocation' as challenging factor, it was significant to new universities. This was the fact that new universities adopted their businesses processes from elder universities when they commenced their businesses. On the other hand, '*lack of organizational readiness*' was considered as challenging factor to implement the redesigned processes by two groups, while '*larger organizational size*' had no impact on BPR implementation for both groups. Taking the mean value for the factor, i.e., '*existing infrastructures*' had impact for new universities (3.15) than elder universities (2.95). Generally, four organizational factors were challenging factors to new universities, while elder universities were challenged by two organizational factors. Even though the second phase not attempted to understand the magnitudes of challenging factors by universities type, its results showed that only two organizational factors contributed to delay the implementation of BPR at universities. Thus, in this category, the magnitudes of two factors were substantial compared to others. These factors are '*problems related to rigid hierarchical structures, jobs definition, and responsibility allocation*' and '*lack of organizational readiness to change*'

The severities of two factors related to BPR project management have considerable differences between the two groups. In this case, the mean values for the factors of '*employees and customers not openly and actively involved and consulted at all stages of BPR*' and '*ineffective redesign team members*' showed that they had impacts on new universities' BPR implementation (3.2 and 3.05, respectively), while they had no impact on elder universities. On the other hand, two factors had no impact on both groups' redesigned processes, i.e., '*processes extremely designed*' and '*ineffectively designed*'. The other project management factor, i.e., '*insufficient trainings on BPR implementation and absence of consultants' advice*' challenged both groups to implement their processes. However, results obtained from the interviews in the second phase indicated that none of the factors included in this category contributed to delay the implementation of redesigned processes at universities.

For IT factors, problems related to '*employees and customers know-how deficiency about IT use*' had impact for both groups to implement the redesigned processes. As the mean

value of 2.1 and 2.2 for the factor, i.e., '*IT role not considered as enabler*' indicates that both groups considered IT as enabler of BPR, while '*IT has significant role*' for elder universities compare to new universities. However, compared to elder universities, new universities have been confronted with problem to '*provide training on IT use*'. On the other hand, problems related to '*IT infrastructures investment and sourcing decision*' were not elder universities' concern, while it was difficult to decide about new universities for this problem. Conversely, results in the second phase showed that none of all IT factors challenged universities to implement redesigned processes.

For the factors included in the country category, most of survey respondents in the first phase showed a higher degree of agreement for all factors, except for the item '*BPR cannot be applied in Ethiopian public universities*'. As such, all respondents considered the four factors as impediments to successful BPR implementation, while the factor, i.e., '*lack of financial resources*' severity was decisive for new universities compared to elder universities. On the other hand, results obtained from the interviews in the second phase revealed that only two country factors, i.e., '*existing proclamations, regulations, rules and directives of the country*' and '*cascading of policies*' delayed the implementation phase, whereas '*lack of financial resource*' were not challenging factors to implement the redesigned processes at universities.

5.2. Conclusions

In general, Ethiopian public universities used BPR to enhance their performances. Thus, implementing the redesigned processes at universities indicates that BPR efforts can yield better performance in terms of reducing processes' cycle time, increasing services' quality, increasing customers' satisfaction, reducing processes' cost, and increasing employees' satisfaction. However, universities have been challenged to implement the redesigned processes by various factors. In relation to research question 1, the research findings indicate that seventeen challenging factors impeded successful BPR implementation in Ethiopian public universities. In addition, in relation to research question 3, results from the interviews revealed that not all seventeen factors impeded the implementation phase.

The study clearly demonstrated that universities' BPR project success depends largely on change-management factors. BPR success can be ensured if change-management factors appropriately handled, such as creating organizational culture and values for change; arranging appropriate incentives, trainings and education for new processes; and necessary changes in human resource policies of the universities. On the other hand, top management support factors, organizational factors and country factors also influenced universities' BPR project success.

From top management support factors, senior management's appropriate leadership style, commitment and support for the project and accepting and assuring new values and beliefs required by the redesigned processes manifested as indicators of successful BPR implementation, even though these were not the case for Ethiopian public universities' BPR project. From organizational factors, appropriate organizational structures, jobs definition, and responsibility allocation to new processes and organizational readiness to change, are indicators of successful BPR implementation. From country factors, amending existing rules and regulations of the country in line with the redesigned processes' requirements and avoiding the nature of policies/programs cascading nature are required to implement the redesigned processes in Ethiopian public universities.

However, BPR project management factors and IT factors were viewed as challenging factors, but they had the least potential influence on BPR implementation success at universities compared to the above-mentioned factors. Thus, except project specific factors, the others factors have been recognized in common by the survey respondents and interviewees as impediments of successful BPR implementation in Ethiopian public universities.

5.3. Implications

BPR is not incremental performance improvement, rather it dramatically improve performance by obliterating business processes radically and fundamentally. However, there appear to be a number of aspects in Ethiopian public universities' BPR project that needs certain actions. Universities' management body and MoE can possibly overcome

some aspects of the challenging factors that the project confronted. Thus, to achieve the intended objectives of BPR, moving universities' redesigned processes in to actually implementing is worthwhile. Based on the analysis of results in the preceding chapter, this study suggests that several challenging factors of BPR implementation to be settled. Thus, the following points suggested to ensure successful BPR implementation in Ethiopian public universities:

- With respect to change-management, several researchers considered as a crucial component to succeed with BPR efforts. However, results of the analysis in the previous chapter indicated that change-management factors were the most challenging factor to implement BPR at universities. To succeed in implementing BPR at universities, thus, it is critical to handle change-management factors appropriately. Existing universities' culture has beliefs and values that have been created to fit the old processes. As a result, existing universities culture no longer appropriate for the redesigned processes. Therefore, universities shall create and appreciate new values and beliefs for the redesigned processes and this can help to create a culture of change to implement the redesigned processes at universities.

  In addition, in newly redesigned processes, teamwork and empowering employees to make decision required. These also require providing appropriate incentive and training, because the redesigned processes brings different job for employees. Unless employees rewarded and take training about the job, they can consider the new job as a burden. Thus, universities shall to consider their incentives and training system because they are important to cultivate teamwork sprits. In this case, Al-Mashari and Zairi (1999) suggested that reward systems should be revised as part of the BPR effort and the new reward and incentive system must be widespread, fair and encourage harmony among employees.

  Moreover, since redesigned processes required new job, it is appropriate to change existing human resource policies in line with their requirements. Thus, unless universities changed the existing human resource policies, implementing

the redesigned processes could be infeasible. The human resource policies change shall to consider empowering employees, making employees more responsible and accountable, and creating a culture of teamwork.

- The results of the analysis in the previous chapter indicated that lack of top management support to BPR project delayed the implementation phase. Various researchers also claimed that lack of support by top management to BPR project cause to failure. Thus, universities' top management shall demonstrate active interest on the project. This encompasses top management appropriate style of leadership, commitment and support, and accepting and supporting new values and beliefs that are required by the redesigned processes. As Al-Mashari and Zairi (1999) indicated, the appropriate leadership style shall be effective, strong and creative in thinking and understanding to provide a clear vision of the future. The vision also needs clear communication to employees of the universities; otherwise, they will lose their motivation. In addition, top management shall demonstrate commitment and support to implement the redesigned processes. If not, employees could manifest resistance to change during implementation and they will be skeptic about the implementation of the redesign processes.

- Organizational factors also contributed to delay the implementation phase, because the redesigned processes need flattened organizational structure and readiness to accept new processes. Thus, to implement the redesigned processes, it is suggested that universities to flattened their organizational structure to tap new jobs and responsibilities that were created when processes redesigned. Before this, universities shall be ready to accept new processes for their businesses. Thus, preparing to accept BPR related changes could ensure implementation successes, because the change could not be accidental to universities communities. In addition, appropriate job definition and responsibility allocation for the redesigned processes is necessary to succeed with BPR, because the new organizational structure created based on employees' jobs and responsibilities.

- Results of analysis in the previous chapter showed that country factors also contributed to delay the implementation of redesigned processes. Since old processes' rules and assumptions breakdowns made during the redesigning phase of BPR, existing rules and regulations delayed the implementation. Thus, to avoid such aspects, it is suggested that MoE to make arrangements with government to amend rules and regulations that conflicted with the redesigned processes requirements. For instance, Debela and Hagos (2011) findings indicated that Ethiopian Revenue and Custom Authority, to accommodate BPR project requirements, abled to change employees' salary after studying its own salary scale and approved by Ethiopian Council of Ministers. Therefore, MoE can able to study rules and regulations that needs amendments and can approve the amendments by the appropriate government body in order to ensure successful BPR implementation in Ethiopian public universities. The other aspect is MoE shall issue and order various policies/programs on appropriate time to Ethiopian public universities in order to reduce the nature of cascading effects.

Generally, ensuring the success of BPR implementation by avoiding pitfalls could help Ethiopian public universities to achieve their BPR project's objectives. If universities abled to implement the redesigned processes, they can improve their performances in terms of reducing processes cost and cycle time, increasing service quality, and increasing customers' and employees' satisfactions.

5.4. Significance of the study and its delimitations

This study could benefits different classes of groups, including Ethiopian public universities, because it can draw attention where corrective actions are necessary to implement BPR. It also adds value to those who would like to pursue their research on BPR, particularly BPR implementation in context of Ethiopia, because the introduction of BPR in Ethiopia is a recent phenomenon. Thus, this study attempted to contribute to the body of literature.

However, the findings are not without limitations, because the study only taken four universities out of twenty-two. As a result, the findings may not be generalizable to all Ethiopian public universities. Nevertheless, this study could provide insights to develop framework for future research to explore the public universities' BPR project along with the documents prepared by the process redesign team members in which this study not considered. In addition, future researcher advised to make interview with universities' management body to have their ideas about BPR implementation progress.

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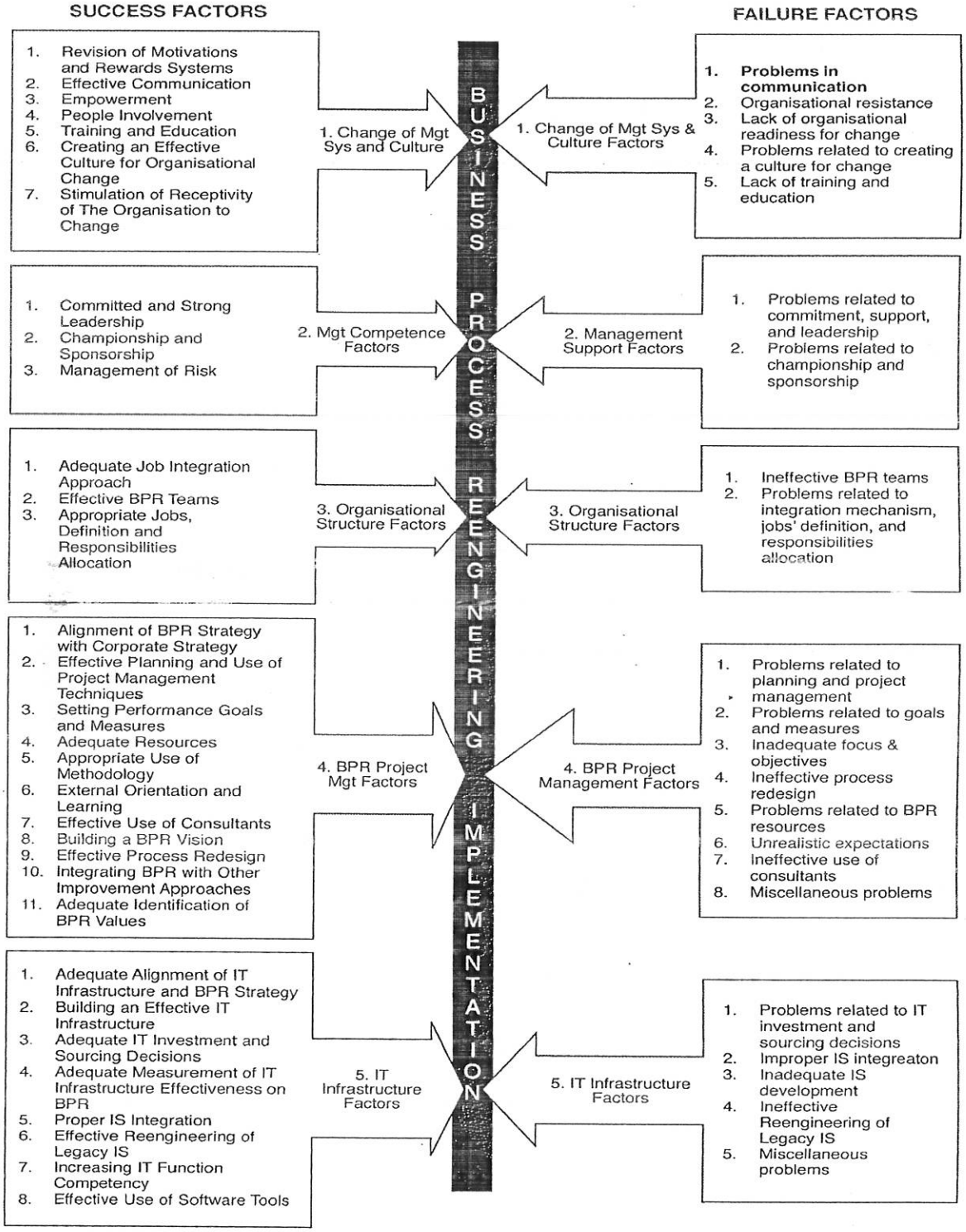
Appendix 1: Summary of key success/failure factors of BPR



A summary of key success/failure factors of BPR (source: Al-Mashari and Zairi, 1999)

Appendix 2: Potential problems of BPR implementation

1. **Management support problems**
   - Lack of top management support in business reengineering efforts
   - Managers' failure to support the new values and beliefs demanded by the redesigned processes
   - Lack of senior management leadership for reengineering efforts
   - Lack of business reengineering project champion
   - Top management's insufficient understanding about business reengineering
   - Insufficient understanding about the goals of top management in relation to business reengineering
2. **Technological competence problems**
   - Lack of expertise in IT in the organization
   - Limited telecommunication infrastructure
   - Limited database infrastructure
   - Limited IS application infrastructure
   - Insufficient understanding about existing data, applications, and IT across the organization
   - Failure to continually assess emerging IT capabilities
   - Lack of IS participation and assistance in the reengineering project
   - Failure to aggressively use IT enablers
3. **Process delineation problems**
   - Scope of reengineered process was inappropriately
   - Failure to identify process owners who are responsible for entire business process
   - Difficulty in establishing performance improvements goals for the redesigned process
   - Failure to include process owners throughout the business reengineering effort
   - Difficult to forecast human resources, financial and other resource requirements
   - Focusing only on evaluation criteria that are easily measured and quantifiable
   - Approach to reengineering was too radical
   - Proposed changes to the process were too incremental, not radical enough
4. **Project planning problems**
   - Lack of strategic vision
   - Lack of appropriate planning
   - Lack of alignment between corporate planning and IT planning
   - Top management's short-term view and quick fix mentality
   - Identification of candidate process for reengineering not based on strategic planning

- Failure to understand the customers' viewpoints in the business reengineering efforts
- Absence of appropriate training for BPR team members
- Failure to commit the required resources (financial, human resources, etc.) to business reengineering efforts
- Difficulty in finding business reengineering team members who have required skills and knowledge
- Lack of authority given to reengineering team
- Lack of experience in business reengineering
- Lack of external consultant support for business reengineering efforts
- Difficulty in financially justifying benefits of business reengineering

5. **Change-management problems**
   - Failure to anticipate and plan for the organizational resistance to change
   - Failure to consider politics of the business reengineering efforts
   - Senior management's failure to commit to new values
   - Absence of management systems (e.g., incentive, training system) to cultivate required values
   - Failure to consider existing organizational culture
   - Difficulty in gaining cross functional cooperation
   - Need for managing change is not recognized
   - Necessary changes in human resource policies for business reengineering implementation were not made
   - Rigid hierarchical structures
   - Line managers in the organization unreceptive to innovation
   - Unreasonable expectations attributed to business reengineering as a solution for all organizational problems
   - Failure to communicate reasons for change to members of the organization
   - Lack of appropriate employee compensation incentives in the new process
   - Inadequate training for personnel affected by the redesigned process
   - Not enough time to develop new skills the redesigned process
   - Failure to build support from line managers
6. **Project management problems**
   - Failure to assess project performance in the early stages of business reengineering efforts to provide feedback
   - Reengineering team member's conflict between team responsibilities and functional responsibilities
   - Too much emphasis on analyzing the existing process

- Poor communication among reengineering team members
- Difficulty in measuring reengineering project performance
- Ambiguity in job expectations for reengineering team members
- Lack of appropriate BPR methodology
- Difficulty in gaining control of reengineering efforts
- Failure to effectively monitor progress of project according to the schedule
- The business reengineering effort takes too much time
- Uncertainty about the reengineering project's time-frame
- Poor communication between reengineering team members and other organizational members
- Difficulty in modeling and simulating the proposed change to the business process

List of potential problems in BPR implementation (Source: Grover et al., 1995)

Appendix 3: Survey instrument

The study is entitled **"Prospects and Challenges to Implement Business Process Reengineering (BPR) in Ethiopian Public Universities"**. The researcher is Naod Mekonnen, who is currently postgraduate student of Accounting and Finance at Addis Ababa University, Addis Ababa, Ethiopia.

The objective of the study is to identify the factors that lead to face challenges to implement BPR in public universities and to better understand the magnitude of the identified factors. To carry out this study, sample of BPR redesign and implementation team members of public universities selected. Thus, the study needs your participation to respond for the questionnaire and the results obtain from the questionnaire will be further studied to better understand the magnitude of challenging factors that public universities faced to implement BPR.

The questionnaire responses will be analyzed anonymously in order to preserve confidentiality. Thus, respondents' name will not be included in the study report. At the end of the study, the summery of findings will be forwarded if you deserve it through your e-mail address.

Thank you in advance

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Part 1: Respondent's profile (please tick the box that best describes your response)

1. Which of the following best describes your current educational level?
   - ☐ Diploma or certificate
   - ☐ Undergraduate
   - ☐ Postgraduate
   - ☐ PhD or above

2. What is your position at your university:
   - ☐ Academic staff
   - ☐ Administrative staff
   - ☐ Academic and administrative staff

3. What was/were your role during your university engaged with BPR project?
   - ☐ Redesign team member
   - ☐ Implementation team member
   - ☐ Redesign and implementation team member

Part 2: BPR implementation at the university (please tick the box that best describes your response)

4. To what extent the redesigned processes of the university implemented? **(Based on your perception)**
   - ☐ 0 – 10%
   - ☐ 11- 20%
   - ☐ 21- 30%
   - ☐ 31- 40%
   - ☐ 41- 50%
   - ☐ 51- 60%
   - ☐ 61- 70%
   - ☐ 71- 80%
   - ☐ 81- 90%
   - ☐ 91-100%

5. Which one best describe the time frame to implement BPR fully at your university?
   - ☐ Less than one year
   - ☐ Between one year - to - two years
   - ☐ Between two years – to – three years
   - ☐ Between three years – to – four years
   - ☐ More than four years

6. Which process of the university do you suppose as the most challenging to implement?
   - ☐ Core processes
   - ☐ Support processes

7. Who is responsible to implement BPR (**you can choose more than one item**)?
   - ☐ Redesign team members selected as implementation team members
   - ☐ Top managements of the university other than redesign team members
   - ☐ University's employees other than redesign team members
   - ☐ External consultants

Part 3: BPR project cost and benefits (please tick the box that best describes your response)

8. BPR project of the University too costly undertaken.

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

9. Cost reduction of the processes expected as a result of implementing the redesigned processes:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

10. Process cycle time reduction expected as a result of implementing the redesigned processes:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

11. Increased service quality expected as a result of implementing the redesigned processes:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

12. Increased customers' satisfaction expected as a result of implementing the redesigned processes:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

13. Increased employees' satisfaction expected as a result of implementing the redesigned processes:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

Part 4: BPR implementation success/failure factors (please tick the box that best describes your response)

Section A: Top management support factors

14. Failure to implement BPR caused by lack of leadership, commitment and support demonstrated by the university's highest level management:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

15. Top management's insufficient understanding about BPR:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

16. Top managers' fear to support the new values and beliefs required by the redesigned processes:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

17. Lack of total involvements of top management who have real power to change:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

18. The fundamental source of difficulty for the university to implement BPR is the fact that processes get reengineering and management does not:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

Section B: Change-management factors

19. Fears about political, economic, and organizational risks due to change initiative of BPR:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

20. Lack of creating organizational culture and values for change:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

21. Employees' resistance to change due to job displacement:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

22. Lack of necessary changes in human resource policies of the university for BPR implementation:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

23. Absence of management systems (e.g., incentive, training and education) to cultivate the required values of redesigned processes:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

Section C: Organizational factors

24. Lack of organizational readiness to change prior to BPR project start:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

25. BPR project initiatives of the university not caused by the felt needs of change the university:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

26. Larger organizational size of the university impede BPR implementation:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

27. Existing infrastructures of the university impede BPR implementation:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

28. Problems related to rigid hierarchical structures, jobs definition, and responsibility allocation:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

Section D: BPR project management factors

29. University's employees and customers not openly and actively involved and consulted at all stages of BPR:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

30. Processes of the university extremely redesigned:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

31. Processes of the university ineffectively redesigned:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

32. Ineffective BPR teams members of the university:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

33. Insufficient trainings on BPR implementation and absence of consultants advice to implement BPR:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

Section E: Information technology (IT) factors

34. **IT** role not considered as enabler of BPR during redesign phase:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

35. **IT** has significant role for the redesigned processes of the university:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

36. Problems related to IT infrastructures investment and sourcing decision impede BPR implementation:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

37. Employees' and customers' know-how deficiency about the use of IT in the redesigned processes impede BPR implementation:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

38. Problems related to training provision about IT use in the redesigned processes:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

Section F: Country factors

39. Existing proclamations, regulations, rules and directives of the country contribute to delay BPR implementation at the university:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

40. Lack of financial resources contribute to the failure of BPR:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

41. Cascading of policies impede BPR implementation:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

42. BPR considered as a passing managerial fancy (e.g., it will go away, ignore it):

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

43. BPR cannot be applied in case of Ethiopian universities:

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree

Note: If you deserve to have study's summery report at the completion of the study, please provide you email address in the space provided (your address will be confidentially handled): .....

Thank You