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Business process reengineering in developing economies

Lessons from microfinance institutions (MFIs) in Uganda

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Abstract

Purpose – The purpose of this paper is to study the relationship between organizational adaptability, institutional leadership and business process reengineering performance using the tested complexity theory in a developing economy setting.

Design/methodology/approach – This study is correlation and cross-sectional and adopts institutional-level data collected via questionnaires from reengineered microfinance institutions in Uganda. Cluster analysis as data mining technique was used to classify cases based on respondents' opinions into homogeneous clusters. Nvivo was used to understand the perceptions of business process reengineering performance based on qualitative data. The authors used structural equation modeling to derive the predictive model of business process reengineering performance in a developing world setting.

Findings – The authors find that organizational adaptability and institutional leadership are key predictors of business process reengineering performance. Results reveal a predictive model of 61 per cent based on structural equation modeling for the study variables. Cluster analysis as data mining approach explored complex patterns of reengineered business processes.

Research limitations/implications – The use of cluster analysis is susceptible to problems associated with sampling error and absence of fit indices. However, the likelihood of these problems is reduced by the interaction with the data, practical implications and use of smart partial least square to generate structural equations based on derived measurement models of each study variable.

Practical implications – Policymakers of Bank of Uganda, Ministry of Finance and Economic Planning, should develop sound policies in relation to knowledge management, institutional leadership and adaptive mechanisms to enhance business process reengineering performance to take advantage of new knowledge opportunities for the improvement of their businesses.

Social implications – Given the results from structural equations generated, managers need to consider institutional leadership and organizational adaptability as key drivers of business process reengineering performance in microfinance institutions. The results confirm the significant role of institutional leadership, organizational adaptability in determining business process reengineering performance outcomes.

Originality/value – Unlike most of the business process reengineering literature, this study contributes to literature by domesticating and testing complexity theory to explain business process reengineering performance in developing economies.

Keywords Business process reengineering performance, Institutional leadership, Organizational adaptability

Paper type Research paper

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Introduction and motivation

In this paper, we test the complexity theory and study the relationship between organizational adaptability, institutional leadership and business process reengineering performance in a developing economy setting using lessons from microfinance institutions (MFIs) in Uganda. The progressive globalization, complexity of customer service needs, global competition and dynamic demands in a competitive and ever changing environment has forced MFIs to radically redesign the core processes that deliver services efficiently and effectively. Accordingly, institutions are constantly inventing, redesigning new ways of serving clients better. The reengineered core processes include; cheque processing, loan management, customer service, queue management, microfinance systems, accounting processes, service delivery, data processing process, claims processing, process scheduling and application processing. These core processes are constantly changing to enrich the operational performance of MFIs.

In practice, models such as Malcom and technology acceptance have been widely used to automate, innovate, remove unnecessary processes and solve queuing decision problems. MFIs are restructured; systems, roles and tasks are combined. The core processes are sequentially designed, streamlined to ensure optimal oriented procedures, functions, maximum control, increased productivity and process performance. Further, innovative processes such as electronic queuing management systems and information microfinance management systems are adopted to ensure efficient operations. The reengineering practices call for the theoretical explanations. Following this line of reasoning, the theory of complexity advocates that as MFIs co-exist and co-evolve, they create new patterns of work, orderly emergent actions and adaptive behaviors which react to environmental forces (Goldstein, 1997; McMillan, 2008).The theory draws attention to the emergence of new patterns and structures, path dependency, self-organizing, uncertainty and dynamic connectedness. The theory advocates for organizational adaptability and institutional leadership. MFIs such as FINCA and Centenary are co-evolving and adjusting their internal financial processes and reshaping new structures, reward systems and technologies to attain viable financial stability, meet the dynamic vast needs of the poor and serve them better. Accordingly, specific adjustments are necessary to capture the specificities of microfinance activities along with amending the existing regulations and creating a new regulatory framework for microfinance. Through the constant regulation and supervision, they are able to institute strong resilient and visionary leaders that create flexible structures, systems and technologies to withstand the turbulent forces of competition in the financial sector and meet the dynamic needs of the poor. MFIs are devising coalition networks and aligning vision with strategic goals. The theory elaborates the coalitions and networks among and between other financial services to ensure process innovations such as inters witch, internet banking and mobile banking in situations of complex interdependent social, economic, and political environments. Indeed, they are institutionalizing a leadership that spurs process changes. However, to a small extent, constant microfinance strategic plans and stagnant structures after business process reengineering implementation may not be exhaustively explained by theory.

Our study is motivated by a number of reasons. First, previous scholars in the field of complexity science have applied sophisticated linear business process models such as workflow models, yet the processes are complex and the environment is always changing very fast. The models largely ignore aspects of adaptive, absorptive and innovative capabilities, which may be theoretically explained. Empirical review of literature on business process reengineering performance provides empirical evidence that merely reengineering does not guarantee better results. Second, the failure of core processes, systems and structures of different MFIs to respond to the constant changing environment has resulted in operational inefficiencies such as customer queues, service delays and increased operational inefficiencies (The World Bank Report, 2010). More so, over 70 per cent of reengineered endeavors fail to perform (Mlay et al., 2013). Third,

given the simultaneous implementation efforts and failures of business process reengineering, there is a need to test a good theory that adequately explains practice in dynamic situations (Whetten, 1989). Nevertheless, then study augments the field of management science by studying business process reengineering performance of MFIs using a theory of change from complexity science phenomenon.

Context of the study

In the developing world context, MFIs are innovatively playing an intermediating role of generating incomes and providing financial services to the poor. They bridge the gap that commercial banking has not been to ably fill by providing loans for the specific purposes of creating self-employment, thereby enabling the poor communities to build their own microenterprises and move themselves out of poverty (Tawakol, 2015; Ledgerwood & Earne Nelson, 2013). The problem of implementing business process reengineering that can perform in the context of developing economies, such as Uganda's economy, is not new. Accordingly, recent data in MFIs show that the business process reengineering failure rate continues to be high in the context of developing economies. The reality is that MFIs in developing economies, particularly in Uganda, are continuously making incremental and radical changes. The rationale behind such business process changes lies in the fact that operating and financing costs are persistently increasing, customer demands in local communities are complex and dynamic with increasingly stiff competition. Indeed, there is an acknowledgement that the regulatory authorities are forcing MFIs to adapt, transform business processes, and create flexible regulations and management policies to efficiently serve the poor. The evidence of business process reengineering phenomena exists in Uganda's MFIs as shown by the Social performance report (2013) and AMFIU report (2015). The social performance management was carried out to transform the poor communities as indicated by social performance measures such as: client protection, client satisfaction, outreach and social performance information. The overall improvement of the social performance score also reflects the growth and maturing of smaller financial intermediaries that are increasing their outreach, and better integrating systems and processes to manage their social mission. In this study, we attempt explain business process reengineering performance in MFIs of developing countries using evidence from institutional leadership and adaptability. The study utilizes constructs from complexity theory to explain the business process reengineering phenomenon in MFIs of a developing economy context like Uganda. This study further augments the works of Kurmet & Maaja (2008), Taylor (2005) and Selznick(1957), who assert that "institutional leadership creates institutional values of microfinance institutions in static situations yet institutional leaders keep on changing their strategies to meet the dynamic changes, external and internal forces of microfinance institutions, and other financial institutions".

Literature review

MFIs are created and maintained to transform the poor communities. The challenge is how to ensure that institutional leadership practices become institutionalized. It is vital that while institutionalizing leadership, the management takes keen interest in law specificities of microfinance businesses such as the Microfinance Act of 2006. The Act was the first of several laws pertaining to licensing provisions, central bank supervisory powers, and protection of deposits. The regulations defining and governing deposit-taking MFIs include Categorization of Deposit-Taking MFIs (2008), Deposit-Taking MFI Regulations (2008), Deposit-Taking MFI Regulations – Consumer Protection (2008) – and the Guideline on the Appointment and Operations of Third Party Agents by DTMs (2011).The role of institutional leadership in creating, developing and maintaining the complexity of these

MFIs is still superficial. Accordingly, in the context of MFIs, the purpose of institutional leadership is to ensure the attainment of strategic planning and development of institutional values, integrity of financial and non-financial processes of MFIs. However, previous scholars have tended to concentrate on the leadership in institutions rather than the leadership of the organization. The scholarly argument in area of management seems to indicate that the transition from administrative leadership to institutional leadership of MFIs has not been conceptualized and fully explored. Evidenced based policy and administration mechanisms are interdependent. In essence, MFIs enhance their reengineered core processes if the institutions inherently harness the institutional leadership practices of coalition network, ensure maintenance of institutional values, remain resilient with persuasiveness and visionary leadership to improve and manage changes of reengineered business endeavors (Selznick, 1957; Terry, 1995; Selznick, 1949; Tikkanen & Polonen, 1996). Accordingly, institutional leadership is used to align the interests of the organization and its stakeholders to achieve dramatic performance improvement. Scholars view institutional leadership in an idealized way, which allow leaders to refocus the mission with vision of the MFIs in attempt to remain competitive (Bernard & Avolio & Bass, 2004). Leaders of MFIs have the ability to advice the regulators to opt for microcredit ratio that secures the resilience of the financial system without discouraging micro-lending activities in the economy. The attempt to understand specificities regarding currency risks in the Ugandan context is crucial. This is perhaps because MFIs often operate in countries where there is no proper instrument or knowledge on how to hedge efficiently against foreign exchange swings. Further, institutional leaders talk openly about institutional values, beliefs, emphasize a strong sense of purpose, moral and ethical decision making and emphasize the collective sense of mission. Further, the performance of business process reengineering requires leaders who stimulate innovation initiatives and play an associating role in the reengineering of the financial and workflow processes. The first hypothesis is summarized as:

H1. There is a positive relationship between institutional leadership and business process reengineering performance.

Nowadays, institutions are generically different in terms of process design compared to previous years. As such, MFIs have been changing from time to time due to changes in technology and customers' demands (Hammer & Champy, 1993; Xin, 2005; Banham, 2010). Scholars have attempted to explore leadership, empowerment, knowledge technology, cultural factors, project management, methodology, performance management, communications and strategic alignment as the key predictors of institutional agility (Mahmoudi & Mollaei, 2014). However, these scholars focus on the effect of organizational adaptability on business process reengineering performance. Failures of MFIs to adapt to environmental changes make organizations lose important customer segments, cost leadership and competitive strength for survival reasons (Fernando & Rogelio, 2005); in situations of complexity, however, individuals make their change decisions at individual levels whether rationally or irrationally to improve process efficiency (Amita, & Sagiv, 2013; Goldstein & Girenzer, 2002). Accordingly, institutionalized organizations operate as self-organizing systems; produce global patterns from interactions of their own components resulting from internal mechanisms toward an external attractor. Even simple systems can produce complex behaviors that cause the butterfly effect, which is the source of process innovations in MFIs. It is important, therefore, that supervisors carefully check MFIs' capacity to manage the complexity of currency risks and impose clear limits if the MFI is not able to address such risks properly. More so, understanding the specificity of diversification of assets can reduce the overall risk of the concerned MFIs. Furthermore, there is a need to

understand process management and its perspectives such as deterministic, complex dynamic systems, interacting feedback loops and social constructs so that institutions can transfer from a functional to a process approach leading to dramatic competitiveness, productivity and operational performance (Grzegorz, 2014; Davenport, 1994). The inability to connect institutional strategy to core processes and activities means the significant risk of wasting valuable resources of time, people, processes and technology:

H2. There is a positive relationship between organizational adaptability and business process reengineering performance.

According to Selznick (1957), institutional leadership is defined as the developing and infusing mission of the organization, nourishing external supporting mechanisms to enhance the legitimacy of organization, while conserving distinctive institutional values and integrity. Institutional leadership is the collective ability of leadership to cope with changes within external environments by maintaining the primary goals of the organization. It is, therefore, institutional leadership which brings aspects of fundamental values such as; integrity and financial transparency as one of the primary goals that ensure sustainable existence and competitiveness of MFIs. Such values smoothen the strategic planning of the institutions, social developments of the poor communities and collaborative networks of other financial institutions. Theories of leadership have skewed toward characteristics of leaders, behavioral factors of leaders and situational factors that determine effective approaches to leadership without paying attention to the leadership of the organization. As such, there is a critical need for most organization such as MFIs to instill institutional leadership in this world of competition and dynamic changes. Institutional leadership is characterized by; embodiment of values in organizational structure through the elaboration of commitments, influence and negotiations, reconnection of the organization to the original values through the promotion and protection of core values (Selznick, 1957). According to Kraatz and Moore (2002), changes in leadership may lead to institutional changes in three ways; knowledge transfer and inter organizational learning, emergence of new mental models and assumptions, and replacement of institutional values. Leaders cannot understand institutional systems and processes until one tries to change them (Schein, 1996). However, not every leader can learn from institutional external and internal environment for survival. Colville et al. (1993) affirm that managers rarely appreciate or understand a situation until after it has changed overtime. Furthermore, institutional leadership begins with defining whether the organization operates as an institution with shared values, awareness of the employees' thoughts and feelings about the vision of the institution and examining the level of institutional employees' commitment toward the attainment of institutional values at the work place (Holt et al., 2007). The institutional leadership roles that boards and managers have to perform have evolved overtime in terms of service, strategy and control roles while defining the value of institutions (Heuvel et al., 2006). Furthermore, in this study we argue that building institutional leadership creates an adaptive mechanism that ensures the classification of loans and specification of microfinance deposits and loan requirements, which are important regulatory instruments in MFIs. In general, provisioning requirements is more conservative than traditional banks, as microloans frequently makes more installment payments than traditional loans. As such, the specificities of MFIs are built around the idea of transformational change leadership, which depicts the organization as a site where shared beliefs are adapted and coordinated for immediate action (Langfield-Smith, 1992). Thus, the next hypothesis is developed:

H3. There is a positive relationship between institutional leadership and organizational adaptability.

Methodology

This study examined the ontological and epistemological perspectives of the constructs under study (Marsh & Furlong, 2002). The truth about the knowledge of business process reengineering performance is that it is both objectively and subjectively studied. The theories used to conceptualize business process reengineering performance have constructs that are measured subjectively such as organizational adaptability and institutional leadership. The study was concerned with what constitutes valid knowledge and how we can obtain it (Creswell, 2003). This study was guided by the review of complexity theory to explain the practice as far as business process reengineering performance is concerned. The theory was tested and improved based on quantitative and qualitative approaches and analysis of the results (Punch, 2005).The critical realism paradigm was used in this study. This paradigm involved successive triangulation of quantitative data with a support of qualitative data to explain the perceptions of business process reengineering performance of MFIs. The questionnaire and appreciative inquiry research instruments that guided this study are presented in Appendices 2 and 3, in the appendix section. These instruments were used to gather quantitative and qualitative data respectively as business process reengineering performance is real. It exists and is both structured and unstructured in a way that in Uganda, MFIs are practicing it and managers perceive differently. The structured reality of business process reengineering performance is observed in the reengineered MFIs and the unstructured reality is that it is obscured and managers attach different meanings to it.

Population, sample size, sampling design and procedure

The study targeted 95 MFIs operating in Uganda (Association of Micro finance institutions (AMFIU), 2015).The focus was on reengineered business processes of MFIs, regulated or not. An approximate sample size of 77 institutions was computed by the formula $n = (95)/(1 + 95(0.05)^2) = 76.77$, used by Yamane (1973), with 5 per cent level and with 95 per cent level of confidence using statistical power analysis (Cohen, 1988). The method is preferred because it yields a fairly representative sample size which one would expect even if other popular approaches such as table of sample size determination by Burrell & Morgan (1979). The snowball sampling technique was used to select the MFIs that practiced business process reengineering. The snow ball sampling technique was used as the sampling frame was not well defined and thus no single list for the known reengineered institutions was available to ensure the institutions to be randomly selected. The purposive sampling technique was used to select managers who had previous experience in business process reengineering practices. Data were collected and aggregated to the unit of analysis. The data was analyzed using a multiple robust computer software, such as smart partial least square (PLS), statistical package for the social sciences (SPSS) and Nvivo. The statistical package for the social sciences was used for preliminary analysis such as data management, confirmation of assumptions of parametric data and cluster analysis for data mining. Accordingly, quantitative data were analyzed using smart partial least squares while qualitative data was analyzed by using Nvivo.

Measurement and operationalization of the study variables

In this study, the measurement and operationalization of variables were made based on the research instruments used by previous scholars. We used a Likert scale questionnaire to gather

the views and opinions on business process reengineering performance and its predictors. Business process reengineering was conceptualized as a process innovation, process redesign and process re-invention for performance improvement (Chan et al., 1997). This conceptualization contradicts other scholars' views. For example, Ahmed (1996) conceptualized business process reengineering as a process, radical change and socio-technical approach. Business process reengineering performance is operationally measured in terms of cost reduction, time reduction, output quality and quality of work life (Muhammad et al., 2013; Grzegorz, 2014; Grover et al., 1995). Furthermore, Al-Mashari et al. (2001) asserts that business process reengineering performance is inherently subjective; the goals and targets set vary among organizations. In this study, business process reengineering performance is a multi-dimensional construct and requires in depth understanding from both qualitative and quantitative perspectives. According to Selznick, (1957), the core elements of institutional leadership therefore include defining and embodying the mission and role of the organization; defending the integrity of the institutions; setting clear purpose and actions toward the set goals; and resolving conflicts both internally and externally while meeting the internal and external demands of the organization. Institutional leadership is inherently seen and dimensionally explained as coalition networking, maintenance leadership, resilient leadership, persuasive leadership and visionary leadership (Choi et al., 2011; Selzinick, 1957; Terry, 1995; Selzinick, 1949). Therefore, institutional leadership is a multidimensional construct. On the other hand, organizational adaptability is studied as a multidimensional construct as indicated by Table AI in the appendix section.

Reliability test

Reliability measured the internal consistency of the indicators of the constructs in this study. We tested the reliability and validity to check whether the results are repeatable/replicable so as draw conclusions on the relevance and consistence the instruments used in data collection (Saunders et al., 2006; Sekaran, 2000; Field, 2009). The results regarding reliability are illustrated in Figure A2 as presented in the appendix section. The recommended and acceptable cut-off of the reliable instrument was met as Cronbach's alpha statistic was greater than 0.7, indicating that the instrument has internal consistence and thus giving consistent results (Neuman, 2006; Nunnally, 1978).

Data management, parametric assumptions and analysis tools

The common method bias was handled using procedural remedies by avoiding "double-barrelled" questions; improving scale items by maintaining simplicity and ensuring the time lag of the administering questionnaire. The first part of the questionnaire (for the Independent Variables) and the second part (for the Dependent Variable) were administered three weeks after the research began (Podsakoff, Mackenzie & Lee, 2003).The preliminary analysis was confined to coding, data cleaning and screening. The completed questionnaires were checked for missing values (Little & Rubin, 1997). The inconsistencies of the responses given by the respondents using multiple imputation method were handled accordingly. The outliers were checked by using QQ-plots and PP-plots and were handled accordingly. Diagnostic tests were used to explore the assumptions of parametric data before subjecting the data to analysis using statistical inference. The parametric assumptions such as linearity, normality and homogeneity of variance were used to decide on the appropriateness of the statistical test; the data were subjected to the normality assumption test to explore whether the sample significantly differs from the normal. Data were transformed using log transformation as all the scores were higher than one and not equal to zero (Field, 2009). More so, the reverse coding of questions was thoroughly checked for all the scores. The assumption of homogeneity of variance was

explored using Levine's test to ascertain whether the homogeneity of variance of the study variables is tenable. Linearity assumptions were carried out by exploring the nature of scatter plots of each variable. The diagnostic test results are summarized in the appendix as shown in Figures A4 and A5 and Tables AV-AVIII. In this study, we used the statistical package for the social sciences and smart partial least square software to analyze quantitative data. We further used Nvivo to analyze qualitative data. The latter was used to provide a deeper understanding and perceptions of the senior managers about business process reengineering in a third world setting.

Data mining results

Cluster analysis was performed to group cases into homogeneous clusters, thus reducing the complex patterns in the collected data. Cluster analysis was used as one of the data mining techniques that focus on data reduction to sort cases, observations, or variables of a given dataset into homogeneous groups that differ from each other. The cluster analysis method was chosen due to the complex patterns found in the data. The cluster analysis was carried out in this study to group cases into homogeneous clusters after subjecting the data to a diagnosis test. Considering the data revealed a degree of heterogeneity, there was a need to explore the nature of clustering based on the data obtained from the surveyed MFIs. Agglomerative hierarchical cluster analysis was used to separate each case into its own individual cluster in the first step so that the initial number of clusters equals the total number of cases. At successive steps, similar clustered cases were merged together until every case was grouped into one single cluster. The coefficients at each stage represent the distance of the two clusters being combined as shown in Figure A1 in the appendix section. The agglomeration schedule listed all of the stages in which the clusters are combined until there was only one cluster remaining after the last stage. The number of stages in the agglomeration schedule was one less than the number of cases in the data being clustered. Cases with low agglomeration coefficients were considered for homogeneity reasons to avoid complexity of data. The results revealed a homogeneous pattern of cases, except the cases that scored agglomeration schedule coefficients higher than 1.942.The behavior of clustering is inherently explained by the differently processes reengineered by MFIs and the fact that the surveyed institutions operate at different levels in a competitive environment.

Analysis and results

Data for the re-useable questionnaires were analyzed to generate the descriptive characteristics of the sample for both the unit of analysis and unit of inquiry. The results presented in the appendix section, Table AII, indicate the demographic profiles of the institutional respondents with 47 observations based on aggregated data from MFIs. While Table AIII in the appendix section indicates the demographic profile of individual respondents with 82 observations based the respondents. The descriptive statistics provide a general overview of the demographic profile of the individual and institutional respondents. The results that indicate the sample characteristics of the respondents are analyzed using frequencies; the results reveal that most of the respondents were master's degree graduates (50 per cent). The results further indicate that most of them had reengineering experience of five years and less (42.7 per cent) and were relationship managers (34.1 per cent). The results revealed that most MFIs that reengineered business processes had concentrated on financial processes and redesign of workflow processes to ensure process efficiency (44.7 and 25.5 per cent, respectively). The reengineered institutions have been mostly in existence for a period between 16 and 25 years (46.8 per cent), followed by a period of 6-15 years (11 per cent).

Structural equation model results

Smart partial least squares was used to generate results for the predictive modeling of the study variables using R^2. The model results presented in Table I were used to test the study hypotheses.

The path coefficients are standardized beta coefficients that test whether the proposed hypotheses are supported or not as shown by Table I. The results are additionally presented in Figure A2 in the appendix section.

The results further indicate that both institutional leadership and organizational adaptability contribute approximately 61 per cent on business process reengineering performance. The *H1* is supported: There is a positive correlation between institutional leadership and reengineering performance (B = 0.786, $p < 0.05$):

> [. . .] revealed that top leaders formulate goals, long term plans, vision and sense of purpose with particular attention to process efficiency of structural designs and customized processes of the departments [. . .] (Interviewee 6).

> We appreciate the new leadership that improved timely service delivery, reliable services with minimum risks [. . .] (Interviewee 9).

> A number processes such as accounts payable processes have changed from manual documentation systems to electronic networked computers and automated teller systems [. . .] new core processes, inter switching systems, mobile and online banking technologies have enhanced process efficiency [. . .]. organizational culture keeps on changing to have sustainable businesses and competitiveness [. . .] (Interviewee 4).

H2 is not supported: There is a significant negative relationship between organizational adaptability and reengineering performance (B = −0.010, $p > 0.05$). The evidence that supports such qualitative result was given by one of the interviewees:

> [. . .] We often make decisions to upgrade the systems but process inefficiencies persist. We have even closed some of our branches because of increasing dormant accounts, non-performing loans, sudden fraud and losses [. . .] we often solve workflow problems by creating many serving points but, our clients keep on complaining about delays [. . .] (Interviewee 7)

> Our challenge is to think from scratch and create new insurance services that meet the ever-changing needs of our clients [. . .] (Interviewee 9)

> The cost of credit and non-performing loans ever increasing despite the continuous change management decisions [. . .] (Interviewee 5)

Table I. Structural predictive model

Path	Hypothesis	Path coefficient(β)	*t*-statistic	*p*-value	Decision
Institutional leadership → Business process reengineering performance	*H1*	0.786	4.542	0.000	Supported
Institutional leadership → Organizational adaptability	*H3*	0.806	8.448	0.000	Supported
Institutional leadership → Organizational adaptability	*H2*	−0.010	0.054	0.957	Not Supported
R^2	0.605				
Adjusted R^2	0.589				

Furthermore, *H3* is supported: There is a positive relationship between institutional leadership and organizational adaptability (B = 0.806, $p < 0.05$).This implies that it is not a matter of adjusting to the environment, but the way reengineered processes are managed. This implies that there isa need to carry out business process management practices to capture behavioral aspects of managers while managing the process change:

> [. . .] Staff with innovative ideas always responds to the needs of external and internal customers. A good leader uses the life stories to stabilize and influence others towards the set vision [. . .] We have been protecting our core values, beliefs and creating corporate vision, hope, optimism in brochures and manuals for prompt responsiveness and survival reasons. (Interviewee 11)

> "[. . .] Staff with innovative ideas and persuasiveness always respond to the needs of external and internal customers [. . .] We institutionalized social performance management systems, strategic partnerships, and involved top management to extend social goals to community and serve clients better [. . .] (Interviewee 10)

The quantitative results were supported by the qualitative findings as discussed in the next section.

Qualitative results

Qualitative data explores the indepth understanding of the concept understudy (Yin, 2008; Morgan and Smircich, 1980). The justification of qualitative results is to support the quantitative views about business process reengineering performance. The truth about the knowledge of business process reengineering performance is that it is both objectively and subjectively studied. The quantitative results were used to test the hypotheses with the objective reality of business process reengineering phenomenon. The qualitative results clearly articulate different meanings attached to business process reengineering performance in the context of Uganda's MFIs. More so, triangulating qualitative data with quantitative data to strengthen the complexity theory that considers the dynamic nature of business process performance, especially in Uganda's financial sector where business processes are ever changing. The qualitative approach was carried out according to guidelines highlighted by Yin (2008) and CAPAM (2010; 2016) to provide exploratory and explanatory reasons for the business process reengineering performance phenomenon in the context of developing economies. We interviewed senior managers to get the feel of perceptions of business process reengineering performance as the central basis of our study. After reaching the saturation point with 11 interviewees as the maximum number of interviewees, the data were entered in Nvivo software for analysis. The results revealed different meanings attached to business process reengineering performance as shown in the appendix section, Figure A3. The qualitative results reveal the perceptions of business process reengineering performance in terms of; improved information sharing, improved process technologies, responsiveness to customers, providing solutions with reduced costs and risks, aligned processes, timely feedback and service delivery, achieving targets as per objectives, new process networks, improved service value, improved centralized teams, reduced bureaucracies, reliable service offered, adding new product features and innovative services.

Discussion of results

H1 was supported implying a significant positive correlation between institutional leadership and business process reengineering performance. In the context of MFIs, managers who possess institutional leadership in terms of coalition networks, the more the chances they innovate the business processes and inherently deliver services efficiently and effectively to the

clients and internal staff. Furthermore, visionary ideas are developed, and high performing institutional structures are maintained to ensure well-defined and efficient work activities. Furthermore, visionary ideas are developed; the high performing institutional structures are maintained to ensure a well-defined and efficient work activity. Most of the MFIs have new offices with professionals dealing with various issues of creating an institutional leadership that ensures capital adequacy as one of the specificities to avoid solvency problems. This is because MFIs' portfolios tend to be more volatile than those of commercial banks. In the event of non-repayment, when they arise, they tend to be more risky than in a commercial bank and so operational risks in MFIs tend to be high as well. More so, as leaders develop a coordinative mechanism of processes, monitoring and evaluation becomes simplified; quality interactions are amplified leading improved performance and competitive advantage (Kinicki et al., 2013; Magutu et al., 2010). The results are supported by the works of Selznick (1957) that emphasized that institutional leaders are key drivers of institutional integrity and operational performance. Business process reengineering performance is predicted by a composite of institutional leadership indicators such as through coalition networking, visionary, maintenance and coordinative leadership. Therefore, although this study is not at variance with previous conceptual studies of business process reengineering performance, the present study supports the contention that institutional leadership indicators are the key drivers of business process reengineering performance metrics which include; quality interactions, timely delivery of services and cost reduction(Mile et al., 2002). Microfinance institutional leadership develops absorptive and innovative capabilities to ensure information flow and adaptive mechanisms to dynamic changes to enjoy competitive advantage. This stream of knowledge is in agreement with the complexity theory (Goldstein, 1997; McMillan, 2008; Greifener et al., 2010).

H2 was tested and not supported: There is an insignificant negative relationship between organizational adaptability and business process reengineering performance ($B = -0.010$, $p > 0.05$). Therefore, this study is at variance with previous studies of business process reengineering such as those that suggest the existence of a direct relationship between adaptability and business process innovation (Chhetria et al., 2012). Microfinance services operate as self-organizing systems and as such MFIs adapt to environmental changes so as to benefit from important customer and market segments, reduced costs and quality products for competitiveness and survival reasons. According to *Klein, (1994)*, 88 per cent of the executives were reengineering but half could not define the scope of business process reengineering. As such, the results of this study pay more attention to the relationship between organizational adaptability and business process reengineering performance without understanding the way the processes will be managed after the change. The results are evident that organizational adaptability stimulates business process reengineering performance through cultural changes, narrowing market forces, management systems and structural adjustments (Gudmundur & Thorhallur, 2013). However, the more institutions change their core processes without clear modeling techniques the more they fail to perform (Guimaraes & Owen Chair, 1998; Gunasekaran & Kobu, 2002). This is because they need to understand and adapt to complex patterns, change from old structures to new structures and management systems to create value in MFIs (Boylan & Turner, 2017). Furthermore, creating adaptive MFIs may not necessarily create positive impact on business processes that meet the dynamic customer demands. This means that as MFIs adjust their structures and systems, they should pay attention to the standard prudential regulations that typically limit unsecured loans to some percentage of a bank's equity base. When such rules are adapted to microcredit portfolios, they automatically improve the efficiency of the process of MFIs in developing economies.

Further *H3* is supported: There is a positive relationship between institutional leadership and organizational adaptability (B = 0.806, $p < 0.05$). Due to dynamic demand and competition, business leaders keep on implementing business process reengineering to improve performance metrics. The challenge failed to have a successful implementation, which is related to: management support, technological competence, process delineation, strategic planning, change management and project management (Shanoy, 2016; Hammer, 2010). However, the complexity theory (Anderson, 1999: Goldstein, 1997; McMillan, 2008) explains that the ability of institutional leaders to develop a more structural and systematic workflow process is driven by the systemic possession of technological capabilities and process innovations in the complex nature of stiff competition. More so, institutional leadership creates an environment that implements policies that meet quality sanctions and corrective actions in twofold aspects. First, they deter MFIs from contravening regulatory requirements; second, they help to cure the problem created by the violation of regulations. Furthermore, leaders stipulate the maximum percentage of capital that can be held by a single owner to prevent a concentration of ownership, which could enable a single owner to take independent selfish policy decisions such as insider trading and marketing actions. More so, the specificity of MFIs to lower the amount of currency that investors can bring to the equity base of a financial institution seeking a banking license is critical.

Thus, MFIs need to be infused with values and understand the behaviors and characteristics of those who lead institutions to adjust to external changes create and maintain the structures and the systems that are able to sustain the institutional character and values (Lawrence & Suddaby, 2006).

Conclusion and implications

First, the formation of homogeneous clusters was generated from the cluster analysis as a data mining approach. The findings indicate that the reengineered business processes are homogeneous and belong to the same class of MFIs. Managers need to pay attention to the nature of the processes to be reengineered. Results from qualitative analysis further reveal that business process reengineering performance is perceived differently. We conclude that whereas previous scholars have focused on business process reengineering performance measures, such as efficiency and effectiveness in developing economies, this study has provided theoretical explanation of business process reengineering performance of MFIs in Uganda's context (Sungau, Ndunguru & Kimeme, 2013; Eke & Achilike, 2014). The qualitative data, from such developing world setting, provides a supporting augment to deeper the understanding of the concept. Second, given the results from the structural equations generated herein, managers need to consider institutional leadership and organizational adaptability as key drivers of business process reengineering performance in MFIs. The results confirm the presence of the significant role of institutional leadership and organizational adaptability in improving business process reengineering performance outcomes such as; reduced costs, maximum service delivery and processing time. There is a need to instill institutional leaders who eagerly protect and promote institutional values during institutionalization processes through normative and mimetic socialization, persuasion and coercion to stimulate changes in core processes (Selznick, 1984; Kwangho & Jongwon, 2011). Besides, leaders need to be committed to values and the mission thus managing the internal consistence, developing external supporting mechanisms to enhance institutional legitimacy and overcoming external competitors to protect and maintain the institutional integrity and survival through vision setting, storytelling, and network brokering to defend the institutional values and business process performance practices of the MFIs (Washington, 2004). Third, theoretically speaking, this study contributes to the existing frameworks of complexity science and management science models. Complexity theory has emerged as tested theory of change that explains

business process reengineering performance of MFIs in the context of developing economies. This implies that decision makers of MFIs need to come up with theoretical-based policies, such as business process reengineering policies based on the tested theory. Managers need to equip themselves with absorptive and innovative capabilities to adapt to external concerns (Nariman et al., 2011). We, therefore, affirm that business process reengineering performance is a complex phenomenon that needs to be viewed using a complex paradigm. Fourthly, the study adds a variation to the methodological perspective with mixed methods that capture both qualitative and quantitative data and aspects of business process complexities, since previous studies focused on linear assumptions and mathematical modeling of business process reengineering in the developed world context.

Limitations of the study

Despite the contributions and implications of the study, this study was constrained by a few limitations; some measurement items were adapted from literature focused on the developed world context. More so, the limitations of the study were overcame by reframing, contextualizing and pre-testing the research instruments such as both the questionnaire and interview guide. The study further used literature from both developed and developing world contexts to reduce the errors. The cross-sectional research design ignored the change in time and self-reporting mechanism was another limitation of the study. However, this was overcame by the successive triangulation of quantitative data followed by qualitative data as per MFI as the unit of analysis and key informant as the unit of inquiry.

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Appendix 1

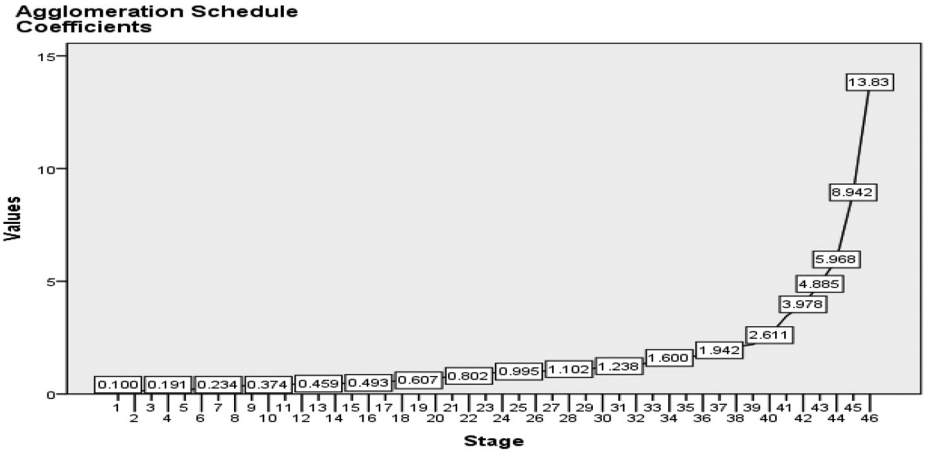

Figure A1.
Cluster results

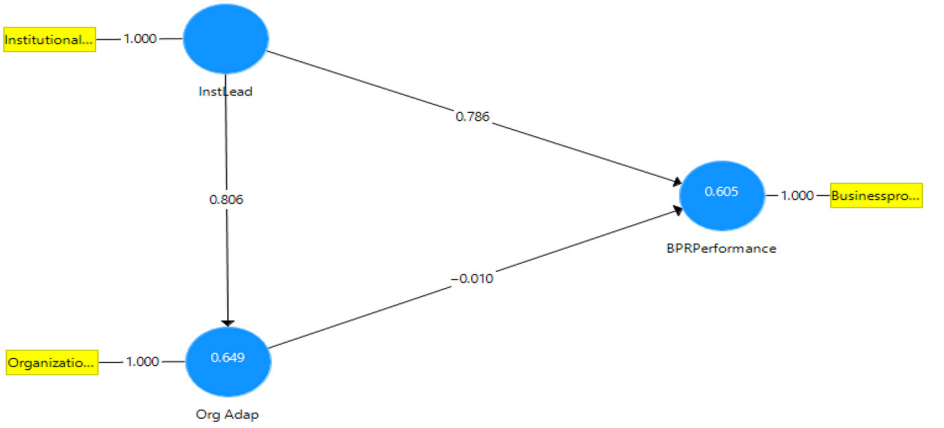

Figure A2.
Structural predictive model of business process reengineering performance

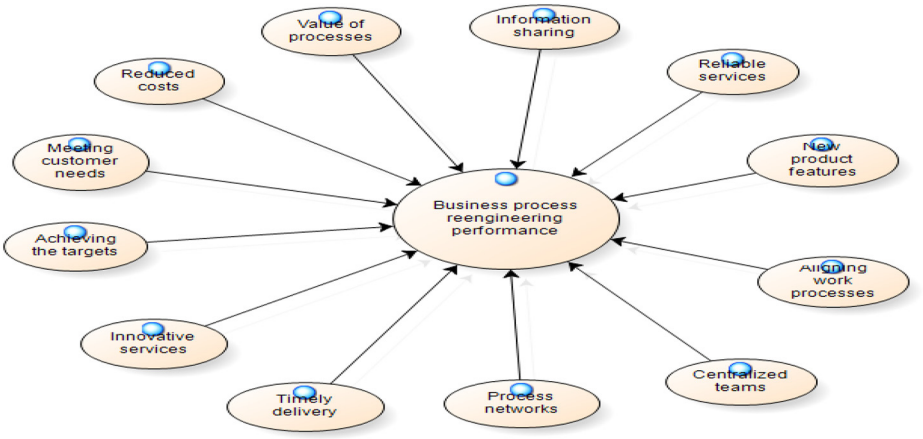

Figure A3.
Perceptions of Business process reengineering performance

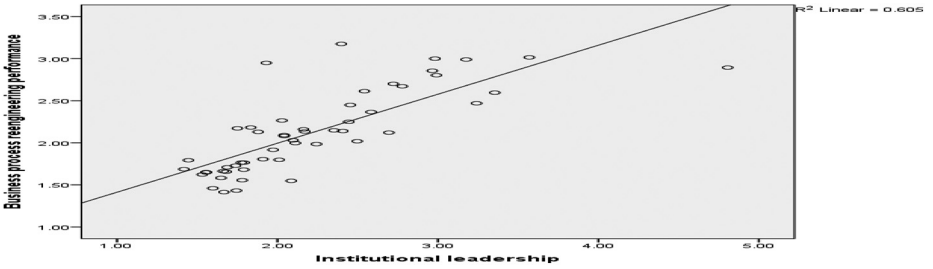

Figure A4.
Linearity of institutional leadership

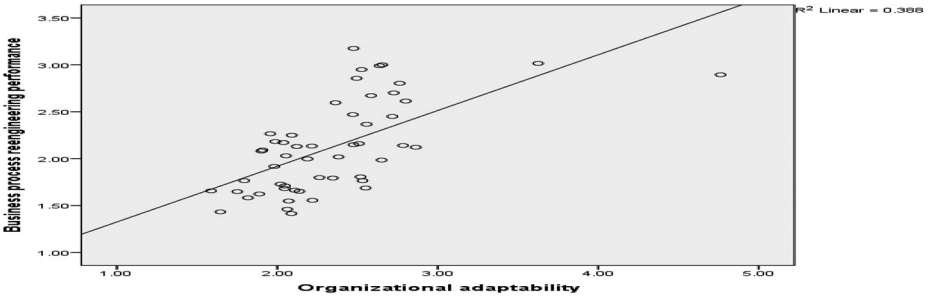

Figure A5.
Linearity of organizational adaptability

Table AI.
Operationalization and measurement of study variables

Global variable and its definition	Constructs	Measurement	Definition of constructs	Sample measurement items
Business process reengineering performance is the *Overall operational outcomes resulting from radical and redesign of core processes(Hammer & Champy,1993; Neely, 2005; Hudson et al.*, 2001*; Davenport, 1990)*	Time	Respondents' mean rank of 6 items of information included in the questionnaire on a six-point Likert scale	Ability to serve customers within specified interval (Neely, 2005)	Activities are completed on time; Information of customer complaints is provided on time; Work or approval steps are short
	Quality	Respondents' mean rank of 8 items of information included in the questionnaire on a six-point Likert scale	Organizational interactions to satisfy customer expectations (Hudson et al., 2001	Clients are satisfied with the image of workflow processes after radically changing processes; Our process teams are responsive to reliable services; Our employees exhibit trust and confidence to clients
	Cost	Respondents' mean rank of 9 items of information included in the questionnaire on a six-point Likert scale	Efficient use of resources (Hudson et al., 2001; Magutu et al., 2010)	Budget requirements of work flow activities are often met; Workflow activities are often cost effective; Our institution uses resources efficiently
Institutional leadership is *developing and infusing mission, nourishing external supporting mechanisms while conserving distinctive institutional values and integrity(Jung & Choi,2011; Selznick, 1949)*	Visionary	Respondents' mean rank of 4 items of information included in the questionnaire on a six-point Likert scale	Inspiring followers to redefine emergent problems intellectually (Jung & Choi, 2011; Selznick, 1949)	Providing ideas that support the institutional vision
	Coalition network	Respondents' mean rank of 4 items of information included in the questionnaire on a six-point Likert scale	Creating institutional networks to overcome external enemies (Jung & Choi, 2011; Selznick, 1949)	Developing external support to process changes
	Maintenance	Respondents' mean rank of 6 items of information included in the questionnaire on a six-point Likert scale	Protecting institutional integrity (Jung & Choi, 2011; Terry,1995)	Defending the death of good existing institutional practices
	Coordinative	Respondents' mean rank of 2 items of information included in the questionnaire on a six-point Likert scale	Ability to ensure shared goals, role integrity and efficient processes (Jung & Choi, 2011; *Macneil*, 1980*)*	Resolving conflicts as team; communicating the goals of radically changing processes; giving correct and positive feedback

(*continued*)

Table AI.

Global variable and its definition	Constructs	Measurement	Definition of constructs	Sample measurement items
Organizational adaptability is the ability to adjust organizational systems, structures to meet the global changes in market and environmental concerns (Gudmundur & Thorhallur, 2013; Tuominen et al., 2004)	Structural adjustments	Respondents' mean rank of 4 items of information included in the questionnaire on a six-point Likert scale	Institutional capabilities to enhance process innovations (Mott, 1972; Tuominen et al., 2004)	Workflow technologies are based on client values; Management collaborates closely with cross functional departments
	Cultural changes	Respondents' mean rank of 4 items of information included in the questionnaire on a six-point Likert scale	Forming shared institutional framework values (Gordon & DiTomaso, 1992; Gudmundur & Thorhallur, 2013)	Responsiveness to environment and cultural changes
	Management systems	Respondents' mean rank of 4 items of information included in the questionnaire on a six-point Likert scale	Ensuring institutional incentives and customer value (Aiken & Hage, 1968; Tuominen et al., 2004)	Reward systems are frequently based on performance outcomes
	Market forces narrowness	Respondents' mean rank of 4 items of information included in the questionnaire on a six-point Likert scale	Ability to identify clients' needs both locally and internationally (Gudmundur & Thorhallur, 2013	Business processes of this institution are well known locally; research activities of our competitors are well known
	Organizational design	Respondents' mean rank of 4 items of information included in the questionnaire on a six-point Likert scale	Ensuring flexible structural adjustments to ensure less bureaucratic tendencies	Responsiveness to change institutional structures

Table AII.
Reliability results

Variable	Cronbach's alpha	No. of items (*N*)
Institutional leadership	0.948	26
Organizational adaptability	0.848	17
Reengineering performance	0.943	23

Table AIII.
Sample characteristics of MFIs

Institutional factors	Frequency	(%)	Valid (%)	Cumulative (%)
Reengineered processes				
Workflow processes	12	25.5	25.5	25.5
Financial processes	21	44.7	44.7	70.2
Information and network processes	10	21.3	21.3	91.5
Human resource processes	4	8.5	8.5	100.0
Life span of institution				
Less than 5 years	3	6.4	6.4	6.4
6-15	11	23.4	23.4	29.8
16-25	22	46.8	46.8	76.6
26-35	6	12.8	12.8	89.4
Over 35 years	5	10.6	10.6	100.0

Table AIV.
Sample characteristics of individual respondents

Individual factors	Frequency	(%)	Valid (%)	Cumulative (%)
Education level				
Certificate/Diploma	6	7.3	7.3	7.3
Degree	27	32.9	32.9	40.2
Masters	41	50.0	50.0	90.2
Professional	7	8.5	8.5	98.8
PhD	1	1.2	1.2	100.0
Training experience				
5 years and below	35	42.7	42.7	42.7
6-10	28	34.1	34.1	76.8
11-15	11	13.4	13.4	90.2
16-20	3	3.7	3.7	93.9
21-25	2	2.4	2.4	96.3
Above 25 years	3	3.7	3.7	100.0
Title of respondent				
Operations manager	26	31.7	31.7	31.7
Relationship manager	28	34.1	34.1	65.9
Senior IT manager	8	9.8	9.8	75.6
General manager	17	20.7	20.7	96.3
Microfinance manager	3	3.7	3.7	100.0

Table AV. Test of normality: Kolomogorov–Smirnov and Shapiro–Wilk

Variable	Kolmogorov–Smirnov Statistic	Sig.	Shapiro–Wilk Statistic	Sig.
Institutional leadership	0.111	0.200	0.949	0.175
Organizational adaptability	0.086	0.200	0.984	0.929
Business process reengineering performance	0.201	0.004	0.914	0.021

Table AVI. Normality test after data transformation

Variable	Kolmogorov-Smirnov Statistic	Sig.	Shapiro-Wilk Statistic	Sig.
Institutional leadership	0.105	0.200	0.961	0.116
Organizational adaptability	0.112	0.186	0.949	0.041
Business process reengineering performance	0.099	0.200	0.975	0.405

Table AVII. Homogeneity of variance

Variable (s)	Levine's statistic	Sig.
Institutional leadership	3.301	0.009
Organizational adaptability	1.152	0.350
Business process reengineering performance	3.343	0.009

Table AVIII. Mulitcollinearity results-dependent variable: business process reengineering performance

Variables	Unstandardized coefficients B	Std. error	Standardized coefficients Beta	t	Sig.	Collinearity statistics Tolerance	VIF
(Constant)	0.422	0.305		1.383	0.171		
Institutional leadership	0.100	0.126	0.104	0.793	0.430	0.395	2.530
Organizational adaptability	0.323	0.121	0.309	2.670	0.009	0.510	1.962

Appendix 2. Self-administered questionnaire

Dear Respondent,

I am undertaking a research entitled "Business process reengineering in Uganda's Microfinance institutions". I kindly request you to fill this questionnaire for the study. The information given will be strictly treated with utmost confidentiality.

A: Please tick the box appropriately as applied to you and your institution

D1-What is your education level? High school [1] Diploma [2] 1st Degree [3] Masters [4] PhD [5] Others [6]

D2- What is your training experience in redesigning business processes? 5 years and below [1] 6-10 [2] 11-15 [3] 16-20 [4] 21-25 [5] above 25 [6]

D3- What title do you hold in this institution: Operational manager [1] Branch manager [2] senior manager [3] Director/Executive director [4]

D4-Please indicate the business processes that were reengineered: Workflow processes [1] Financial processes [2] Information Technology& network [3] man resource processes [4]

D5- For how long has your institution been in existence? Less than 5 years [1] 6 – 15 [2] 16-25 [3] 26-5 [4] over 35 years [5]

B: The questions in this section measures the extent to which leaders often support innovations and integrity of business processes

Every time	*Most of the time*	*Many times*	*Some times*	*One or two times*	*None of the time*
1	*2*	*3.*	*4*	*5*	*6*

Code	Measurement of Items	Scale					
VL1	Providing ideas that support the institutional vision	1	2	3	4	5	6
VL2	Coaching and mentoring of staff	1	2	3	4	5	6
VL4	Providing reward for accomplished goals	1	2	3	4	5	6
RL5	Responsiveness to public opinion on process changes	1	2	3	4	5	6
RL6	Risk taking involving process change programs	1	2	3	4	5	6
RL7	Encouraging communication of process changes	1	2	3	4	5	6
RL8	Empowering team members to participate in process changes	1	2	3	4	5	6
CL10	Creating cooperative relationships with the politicians	1	2	3	4	5	6
CL11	Creating cooperative relationships with other institutions	1	2	3	4	5	6
CL12	Developing external support to process changes	1	2	3	4	5	6
PL13	Providing legal support to process changes	1	2	3	4	5	6
PL14	Persuading members to support process changes	1	2	3	4	5	6
PL15	Persuading mass media to support process changes	1	2	3	4	5	6
PL16	Persuading public to support the process changes	1	2	3	4	5	6
ML18	Concentrating on processes that were previously designed	1	2	3	4	5	6
ML19	Maintaining processes that previous leaders restructured	1	2	3	4	5	6
ML20	Defending the death of existing institutional practices	1	2	3	4	5	6
ML21	Creating an embodiment of institutional values	1	2	3	4	5	6

(*continued*)

C: Please indicate the extent to which the following statements are true relating this institution regarding flexibility to adjust its business processes to fit environmental changes

This is extremely true of this institution	*This is very true of this institution*	*This is somehow true of this institution*	*This is untrue of this institution*	*This is very untrue of this institution*	*This is extremely untrue of this institution*
1	2	3	4	5	6

SA1	Workflow process technologies are based on client values	1	2	3	4	5	6
SA2	Current process technologies are based on client solutions	1	2	3	4	5	6
SA3	Management collaborates closely a cross functional departments	1	2	3	4	5	6
SA4	Flexible information technologies are often implemented	1	2	3	4	5	6
MN5	Business processes of this institution are well known internationally.	1	2	3	4	5	6
MN6	Business processes this institution is well known locally.	1	2	3	4	5	6
MN8	Research activities of our competitor are well known	1	2	3	4	5	6
OC9	Employee roles and responsibilities are frequently changed	1	2	3	4	5	6
OC10	Responsiveness to re-design institutional structures	1	2	3	4	5	6
OC12	Responsiveness to environment and cultural changes	1	2	3	4	5	6
OC13	Willingness to customize and accept new business processes	1	2	3	4	5	6
MS15	Reward systems are frequently based on performance outcomes.	1	2	3	4	5	6
MS16	Reward systems are often based on institutional strategic plans	1	2	3	4	5	6

D: Indicate the extent to which the redesigned business processes perform effectively and efficiently

Always Without fail	Almost all the time	Most of the time	About half of the time	Less than half of the time	Less than a quarter of the time
(100%)	(80-99%)	(65-79%)	(50-64%)	(25-49 %)	(0% - Less 24%)
1	2	3	4	5	6

BT1	Activities are completed on time	1	2	3	4	5	6
BT2	Information of customer complaints is provided on time	1	2	3	4	5	6
BT3	Cycle time of workflow processes is short	1	2	3	4	5	6
BT4	Work or approval steps are short	1	2	3	4	5	6
BC7	Budget requirements of work flow activities are often met	1	2	3	4	5	6
BC8	Workflow activities are often cost effective	1	2	3	4	5	6
BC10	Business processes usually have low maintenance costs	1	2	3	4	5	6
BC11	Our institution uses resources efficiently	1	2	3	4	5	6
BQ14	Public is satisfied with the image of workflow processes	1	2	3	4	5	6
BQ15	Our process teams are responsive to reliable services	1	2	3	4	5	6
BQ16	Our employees exhibit trust and confidence to clients	1	2	3	4	5	6
BQ23	The productivity improved after radically changing processes	1	2	3	4	5	6

Your prompt assistance, cooperation and participation in this research is very much appreciated. Thank you.

Appendix 3. Appreciative inquiry

Dear participant,

This interview is aimed to generate qualitative data. You are requested to spare at least 20 minutes to voluntarily respond to this interview guide. The study seeks to capture deeper understanding of perceptions relating to business process reengineering performance of Microfinance institutions. Your timely responses will be given utmost confidentiality.

A (1): Your institution is regularly making incremental and radical changes to create customer oriented service. Describe a situation when your institution experienced unnecessary, ineffective and inefficient processes [. . .].which core processes were affected [. . .] how did such issues get solved [. . .] What was the outcome?

A (2): Probe: To your institution, what is business process reengineering performance? What incremental and radical initiatives are taking place in your institution? [. . .].What is your experience from such initiatives?

Thank you very much for your kind cooperation.

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