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APPLYING BUSINESS PROCESS REENGINEERING TO SMALL AND MEDIUM SCALE ENTERPRISES (SMES) IN THE DEVELOPING WORLD

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ABSTRACT: *This research looks at processes in Small and Medium Enterprises (SME)s in the developing world and how Business Process Reengineering (BPR) can help them cut costs and also become more efficient. The researchers looked at a particular set of processes in a particular SME in the oil and gas industry in Nigeria. Principles of BPR that are applicable to SMEs were identified from previous literature on BPR. In deciding on a methodology for this research, guidelines from previous research publications on implementing BPR in SMEs were brought together to create a methodology for the study. This research will be of benefit to managers of SMEs in the Oil and Gas Industry trying to gain a competitive advantage in a challenging business environment.*

KEYWORDS: Business Process Reengineering, Small and Medium sized Enterprises, Information Technology, Oil and Gas Industry.

INTRODUCTION

For an organization to remain competitive and profitable it has to find ways to improve its processes (Ya-Ching, Pin-Yu, and Hsien-Lee, 2011). With the constant advances in Information Technology (IT), organizations can find ways to gain competitive advantage over their rivals using technology (Fu, Chang and Wu, 2001).

This is partly what Business Process Reengineering (BPR) tries to achieve. It tries to take a big picture view of an organization's processes and with the help of certain principles, decides if the processes need changes to make them more appropriate and relevant for the organization's purpose (Hammer, 1990; Romney, 1995). Processes no longer fit for purpose can be completely scrapped thereby saving an organization the time, effort and waste associated with it. Taking advantage of the latest advances in ICT is also an important part of BPR (Ya-Ching, Pin-Yu, and Hsien-Lee, 2011; Hammer, 1990; Romney, 1995)

This research will try to look at how SMEs can reengineer their processes in a low-cost manner. Hopefully this paper will be of use to SMEs interested in modernising their processes and can prevent them from falling for the computerization buzzword that can cause them to invest in new technologies with nothing to show for it.

The main aim of this research is to look at the application of BPR in SMEs and how SMEs in the developing world can make use of BPR to cut costs and gain a competitive advantage in the Oil and Gas Industry.

The objectives of the research are:

- To evaluate the impact of BPR in large organizations and SMEs
- To examine the adoption of BRP Principles in SMEs in a developing country

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- To analyse the applicability of the principles to a process and to show its suitability and efficiency on a selected SME.

A Small and Medium Enterprise is an organisation with a maximum earning of approximately £40 million (i.e. €60 million) and a staff strength of less than or equal to 50 (for Small Enterprises) or greater than 50 but not more than 100 (for Medium Enterprises) (Ballentine et al., 1998). For a recent scheme for SMEs in Nigeria, the Central Bank defined an SME as businesses with an annual turnover of less than or equal to N500,000.00 (Five Hundred Thousand Naira only) with a staff strength of not more than 100 paid employees (Central Bank of Nigeria, no date).

Business Process Reengineering

"Business process re-engineering" as a phrase was first coined in 1990 by Michael Hammer in his now very popular article "Re-engineering work: don't automate – obliterate" (Bryant, 1998; Zellner, 2013). It really took off though in 1993 with the publication of the book by Michael Hammer and James Champy titled "Reengineering the Corporation: A Manifesto for Business Revolution" (Raymond, Bergeron and Rivard, 1998) and as they say, the rest is history.

Long before the advent of BPR, many organizations had chosen to automate their processes but subsequently failed to see the corresponding or desired improvements in the way their organizations were being run (Hammer, 1990). One reason for this was that most of these failed investments in automation involved the organizations using technology to replace their previously antiquated ways of doing business without taking an in-depth look at their processes (Hammer, 1990; Gunasekaranm and Kobu, 2002). "They leave the existing processes intact and use computers simply to speed them up" (Hammer, 1990). According to Hammer (1990) "Instead of embedding outdated processes in silicon and software, we should obliterate them and start over."

BPR has been defined as: "the radical redesign of a business process to gain dramatic improvements in performance measures such as cost, quality, service, and speed" (Hammer and Champy, 1993, cited in Muthu, Larry and Hossein, 1999)".

BPR seeks to view the enterprise as one entity, implementing comprehensive, interdepartmental process improvement, and making appropriate use of information technology thereby enabling the enterprise to better respond to changes in its sphere of business (Fu, Chang and Wu, 2001; Gunasekaranm and Kobu, 2002).

"At the heart of reengineering is the notion of discontinuous thinking – of recognizing and breaking away from the outdated rules and fundamental assumptions that underlie operation" (Hammer, 1990). So instead of looking at ways to make the current process better, an organization should instead determine which steps in the process can be said to contribute value to the process and then look for new ways in which better results can be achieved (Hammer, 1990). Reengineering should not just be about automating processes that already exist in the organization but also how to create new processes.

Business Processes

Havey (2005) defines a business process as "step-by-step rules specific to the resolution of a business problem." While Hammer and Champy (1993) define a business process as "a

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collection of activities that takes one or more kinds of inputs and creates an output that is of value to the customer." Gunasekaranm and Kobu (2002) on the other hand define a business process as "A group of related tasks that together create value for a customer."

A business process can be defined as "a task or an activity that adds value to an organisation" while reengineering can be defined as "the thorough analysis, fundamental rethinking, and complete redesign of essential business processes" (Romney, 1995). The ways in which BPR gives organisations a competitive edge is savings in cost, savings in time spent on processes and less defects (Romney, 1995; Adeyemi and Aremu, 2008).

BPR concerns itself with the reasons for a business process rather than how the business process runs. It asks critical questions of an organisation's management procedures, rules, structures, job descriptions, controls, work flows, culture and values (Romney, 1995). After the process of asking challenging questions of why an organisation's processes are run the way they are run, the reshaping of the organisation functions and how information flows within it is carried out while taking advantage of recent advancements in information technology (Romney, 1995; Gunasekaranm and Kobu, 2002). The right use of the latest advancements in information systems technology is a requirement in effectively reengineering an organization (Adeyemi and Aremu, 2008).

The Principles of BPR

According to Hammer (1990) the principles of reengineering are as follows:

- Organizing around outcomes instead of tasks
- Employees who make use of the output of a process should carry out the process
- Include the processing of information part of a process into the work that the information is produced from
- Resources which are not centred geographically should be treated as if they are centralized
- Strive to integrate activities parallel to each other and not just their results
- Decision making should be placed where the work is being done with control built into the process
- Information should only be captured at the source and once only

Challenges in Implementing BPR for Large Organizations

BPR was created with large organisations in mind and so most of the research carried out have focused on large organisations. BPR of course is not a silver bullet and BPR projects face similar problems like most other ICT projects (Abdolvand et al., 2008). Organisations do face different challenges in effectively implementing BPR from having to deal with the usual challenges that practitioners face trying to implement changes in an organisation to those that are specific to BPR (Abdolvand et al., 2008). The expected improvements in the way an organisation functions, savings, and improvements in productivity that are usually expected from information systems projects are not always the eventual result that organizations get in return (Kim and Kankanhalli, 2009; Abdolvand et al., 2008). Some projects end up going on

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past the timeframe set at the start of the project while some information systems' projects just end up getting cancelled before they are even completed (Joshi, 2005; Abdolvand et al., 2008).

BPR for SMEs

Although BPR methodology has been widely accepted, it is more often than not targeted and implemented by large organizations as noted by Fu et al. (2001), "BPR concept is now widely used in many enterprises. However, the majority of enterprises that have adopted BPR are large enterprises."

Although BPR in large organizations is popular and there have been a lot of publicized successful implementations in large organisations, the level of use and implementation among SMEs appears to not be on the high side (Hale and Cragg, 1996). One reason for this is that most SMEs have limited resources, both financial and human even though they play a major role in the development of many economies (Hale and Cragg, 1996).

SMEs play a leading role in many economies by contributing more than 50% of the value of the economies of many countries. "An example of this is Taiwan where over 95% of enterprises are small and medium enterprises (SMEs) accounting for more 50% of total output value and 50-60% of exports; they have played an important role in Taiwan's economic growth" (Fu et al, 2001). In Nigeria, SMEs contribute about 48% of the nation's Gross Domestic Product (GDP) (Nwabugwu, 2015). SMEs though are limited in human, financial as well as material resources posing a major question as to whether SMEs have the financial backbone to implement a Business Process Reengineering (BPR) project successfully.

Hammer and Champy (1993) do posit that any company, SMEs included, can apply the principles of reengineering to their business no matter the size, but that small enterprises need to ensure that they do not make the same mistakes that large organizations make such as dividing the business into functions that are performed instead of processes. Barrier (1994 cited in Hale and Cragg, 1996) does posit that small enterprises might find that reengineering does not go far enough to create the required benefits for them as it does for larger organizations "because the bureaucracy and inefficiency is not as ingrained" in smaller organizations as it is in larger ones.

BPR and the Oil and Gas Industry

With the recent fall in crude oil prices and its effect on the world economy (Carlson, 2014), oil majors have been trying to reduce costs in a variety of ways by closing down oil fields and decommissioning rigs, cancelling proposed pipeline contracts and investments in exploration and laying off staff just to mention a few (Krauss, 2015; Bowler, 2015). Rapid globalization has also affected oil and gas organizations by increasing competition in domestic and international markets (Awolusi and Onigbinde, 2014).

BPR provides a way, another avenue for organizations in the oil and gas industry to further reduce costs by becoming efficient (Bevilacqua et al., 2005). Organizations as shown earlier have been able to use BPR to improve performance in important processes that are both customer facing and internally focused (Islam and Ahmed, 2012). This means that processes can be divided into two categories: operationally facing processes that have to do with those processes that deal with the customer and products the company produces, and management

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facing processes that have to do with processes that deal with the coordination of resources (Davenport and Short, 1990 cited in Gunasekaranm and Kobu, 2002).

Although most of the major international oil and gas organizations have most likely engaged in BPR projects to bring their processes up-to-date, this might not be the case with small and medium scale organizations in the developing world.

Implementing BPR

A lot of different approaches have been proposed in the past for implementing BPR projects with differing results (Vergidis, Tiwari and Majeed, 2008). There has been a somewhat lack of "structured and repeatable methodology" that can be easily applied to different BPR projects for business process optimization (Vergidis, Tiwari and Majeed, 2008).

Hale and Cragg (1996) suggests that the following steps should be considered by organizations in the process of undergoing BPR implementations:

- The use of a methodology
- An explicitly defined vision of the organization
- Explicitly defining the objectives of the process
- Identifying processes that affect a large part of the organization
- Extensively documenting and measuring processes before they are redesigned
- Considering using IT to leverage the redesigned processes
- Making sure that managers are involved with the project
- Take employees into consideration and provide support for them
- Making sure there is an evaluation after the project has been implemented

Barrier (1994 cited in Hale and Cragg, 1996) notes some guidelines proposed by Champy for small organizations interested in reengineering and they are:

- Study the organization and how it operates.
- Protect the company's niche. Study the market for threats and the actions of competitors
- Focus on the customer instead of on reducing cost alone as this can adversely affect the company's capabilities
- Take advantage of the company's small size, as it is easier for smaller organizations to change quickly

The guidelines above are general in nature, even though they are targeted at smaller organizations they clearly lack the specificity that is often available for larger organizations (Hale and Cragg, 1996).

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METHODOLOGY

As noted in the preceding chapter, there exists both qualitative and quantitative methods for conducting BPR research (Vergidis, Tiwari and Majeed, 2008). Although a lot of the recent BPR research has championed the need for more quantitative and empirical forms of research (Vergidis, Tiwari and Majeed, 2008), this research will make use of qualitative approaches as they appear to be the most suitable when considering the constraints that SMEs have to work with.

Guidelines from different research were brought together to form the methodology for this one. The first of such guidelines was the one expounded by Islam and Ahmed (2012) in their research. They advise that the As-Is process for the organization be modelled first by learning more about the organization, learning more about the selected process and properly defining and documenting the AS-IS state of the selected process using a flowchart diagram.

As-Is

The As-Is state is what the process is before it is to be redesigned or reengineered. The To-Be state is the result of the reengineered process. Studying of the "AS-IS processes is a precursor to designing and developing the TO-BE business processes. An AS-IS process can be properly identified and documented through individual and group interviews of the employees involved in both managerial and operational activities." (Islam and Ahmed, 2012).

Islam and Ahmed (2012) advise that before the processes are depicted in diagrammatical forms that data be gathered by conducting interviews with the participants of the processes in order to get a better understanding of the said processes and how different parts of the processes are linked (Grover and Kettinger, 1995 cited in Islam and Ahmed, 2012).

For this research, the requisition process of the selected organization was selected for reengineering. This was because of its importance and the fact that all the departments and units of the organization make use of this process and there has been some confusion with the way the process functions.

The guide from the literature review above from Hale and Cragg (1996) was used in the conduct of this research in addition or within the guidelines by Islam and Ahmed (2012).

Interview

Open ended interviews with three process participants were conducted and each lasted for more than an hour. Two of the process participants had to be interviewed twice, the Head of the Admin Department and the Head of Finance Department. These interviews helped the researchers in learning a great deal about the organization and also about the main processes in the organization and also guided in the decision to select the requisition process for reengineering.

Findings and Analysis

A diagrammatical model was chosen for representing the selected process and an observational technique for analysing the created model.

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Selected Process: The Requisition Process

With the recent fall in world oil prices (Carlson, 2014) the organization like most organizations in the oil and gas industry all over the world, has had to look for ways to reduce costs (Krauss, 2015; Bowler, 2015). The executive management decided that they would not be cutting costs by either reducing the workforce of the organization or cutting staff salaries. Instead cuts were made in other areas of the organization by cutting some operating expenditure and also moving some non-critical capital expenditure to the following budget year. A diagrammatic model of the requisition process is shown in Figure 4.1 below.

The Problem

The numerous steps that need to be passed to complete a requisition process results in delays that end up causing the organization to waste time and lose money. Delays in the requisition process can also have a cascading effect on other processes when for example there is a delay in purchasing items like print cartridges then documentation that needs to be printed and mailed out to regulatory authorities is then delayed.

Another example is when IT consumables have to be purchased by the ICT Unit. The process usually starts in the unit responsible for the IT consumables taking a look at the stock levels by liaising with the store keeper. This can take a day or two. After deciding on what items are in short supply and need to be ordered, a memo is then made and sent to the head of the admin department. Following the process as stated in the diagrammatic model in Figure 4.1, from the point where the procurement officer gets the necessary quotes from vendors to when the memo gets approved for the purchase to be made can take more than a month. The main problem with this is that the quotes provided by vendors are usually valid for only two weeks so by the time the memo gets approved the quote is no longer valid and the vendor refuses to honour it as prices might have gone up for items quoted for.

The vendor might provide a new quote which then needs to be approved by the executive management and this might take more than a month again by which time the quote is no longer valid. This loop can go on for more than 3-4 months. This affects all aspects of the organization as supplies were already running low before the original memo was created.

Another problem with the current approach is the heavy reliance on messengers to carry the memos from one stage of the process to another. This means that a lot of printing and photocopying is done for the messengers to deliver to members of staff. It also means that electronic copies of the memos are not necessarily created and as such it is more difficult to find information regarding previous memos. Searching for information on previous memos has to concentrate more on searching physical folders for printouts, pleading with staff of other departments for copies of the memos to get minutes that have been written on them in order to keep track of previous memos. This can be very cumbersome.

In summary, the major problems with process are:

- Too many unnecessary stages in the process increasing its complexity and making it difficult to follow.
- Inadequate or none use of technology in the process with its heavy reliance on physical printouts.

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- Reliance on physical printouts also means that messengers are used to move the memos between offices at different stages of the process.

The Solution: Proposed Business Process

Using the steps defined earlier, a new process is proposed for requisitions for the organization. The methodology has already been stated in the previous chapter.

Leveraging Technology

The leveraging of the technology is one of the important tenets of BPR. In this case, the proposed technology solution to improve the process does not need to be very advanced.

Most of the invoices sent in by vendors already come in electronic formats via email. They are usually printed to accompany the memos being raised. Memos are also usually created in Microsoft Word format and then printed and sent with accompany documents where necessary before they are sent to the head of admin services.

Emails can also be used in place of physical paper documents. They are easier to search and information on any memo can be easily accessed from any location with an internet connection as long as the user has access to his email account.

Using the proposed diagrammatic model in Figure 4.2 a requesting officer raising a memo will send the document as an email attachment along with other necessary attachments such as the Financial Control Commitment (FCC) form to the head of the admin department. The subject of the email should state clearly that it is a memo requesting for approval from the executive management to incur expenses. The head of the admin department will look at the memo and either reject the memo by sending a reply to the requesting staff member saying the memo has been rejected or approve the memo by forwarding it to the executive management while copying the requesting staff member.

The executive management will then take a look at the memo and its accompanying attachments and send a reply to the head of admin services approving or rejecting the request.

The use of the organization's email system will allow the requisition process to run more smoothly and efficiently. This will also allow the organization to cut costs by reducing the staff it will need to physically transmit memos between departments/units.

Redesigned Process Steps

In addition to the proposed changes above, certain steps in the process should be eliminated or modified. They include the following:

- FCC forms will be filled with the original memo before it is sent out to the head of admin services. This will eliminate the need for the memo to come back to the requesting department/unit to fill the FCC form before the memo gets to the executive management again.

- As stated earlier, having to always print out documents can be a drain on the resources of the organization and also the environment.

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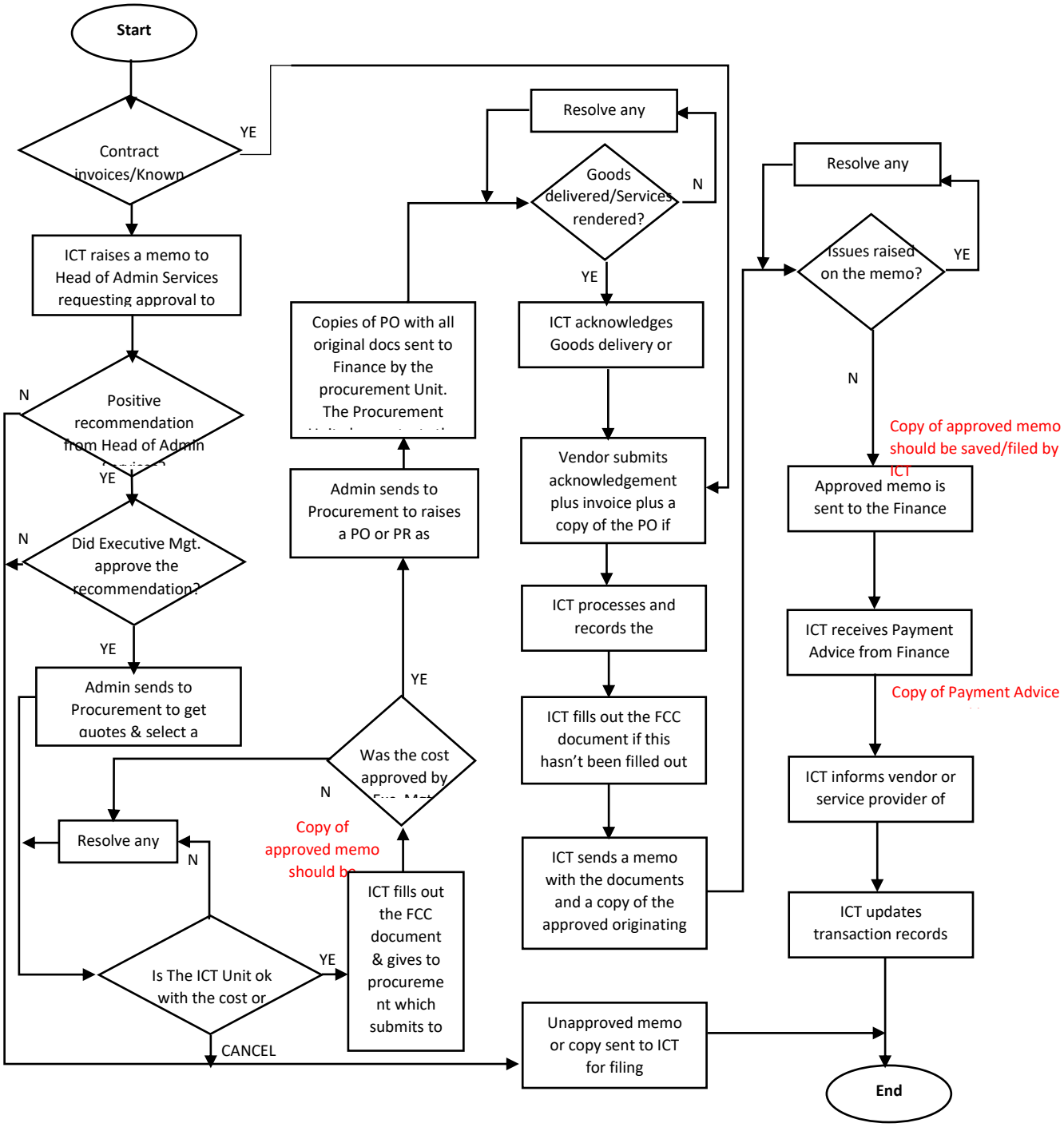

Figure 4.1 Requisition process for the departments and units of the organization.

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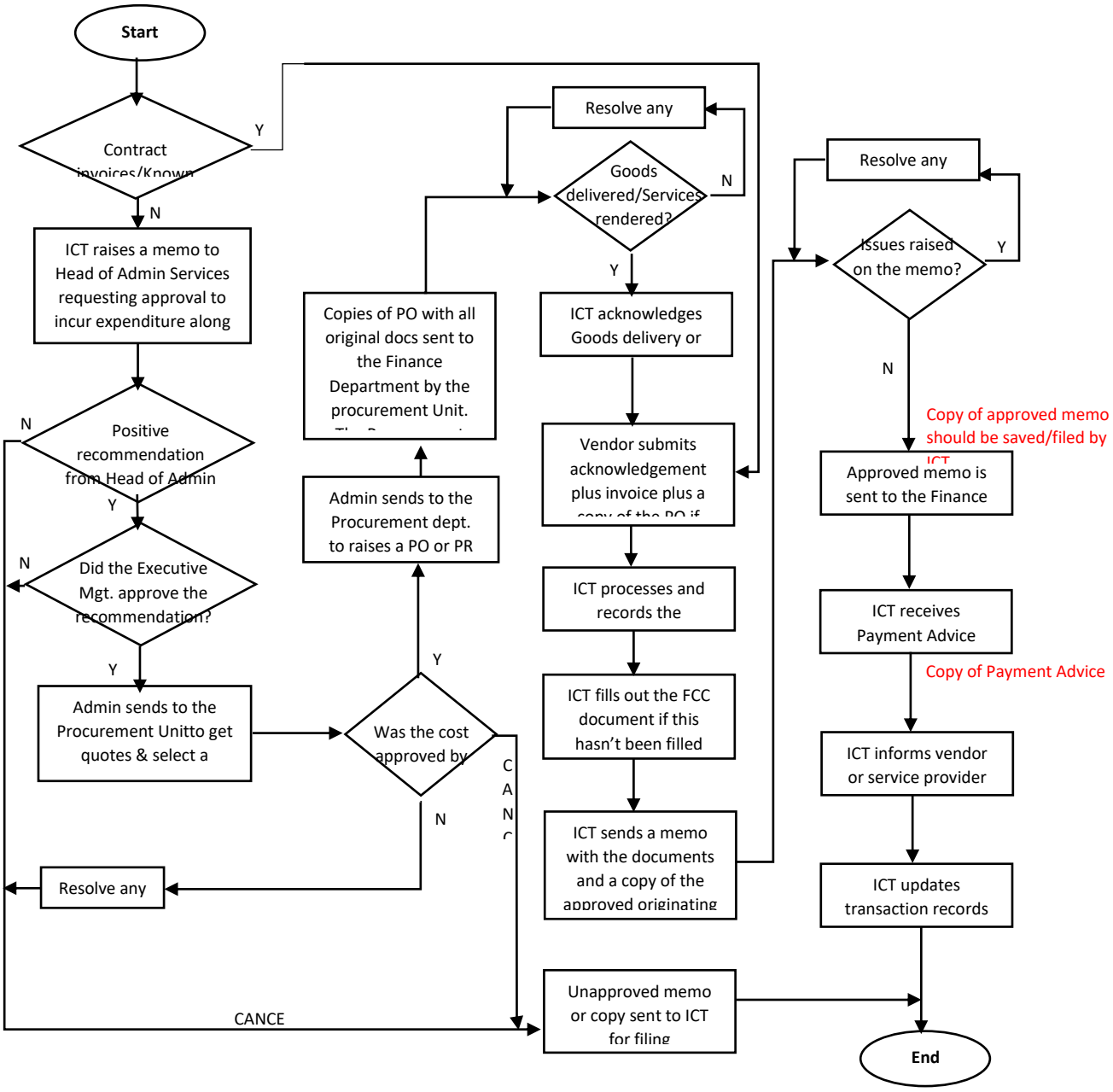

Figure 4.2 Redesigned requisition process for the departments and units of the organization.

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So although technology is a big part of BPR, reengineering processes does not have to always involve large investments in technology for it to work. Especially for SMEs, it is possible to reengineer a process without having to make use of sophisticated technology or any technology for that matter. This is a novel approach at looking at BPR in SMEs.

CONCLUSION

As earlier noted in the literature review, most BPR implementations have focused on large organizations (Fu et al., 2001). This research has looked at the viability of applying BPR to an SME in the developing world and from the data gathered and the analysis carried out on the data in the previous chapter it appears the answer is yes.

The SME in this study like a lot of SMEs in the developing world has a lot of archaic processes in place that have not evolved to take advantage of technology. In some cases, processes have carried on for decades with no one asking why a process still exists even when the purpose for the way the process is run is no longer valid.

RECOMMENDATIONS

This research has shown that it is possible for SMEs to implement BPR in spite of the costs and resources that might be needed for it to be carried out effectively. Although this research does not show the results months after the implementation of BPR it does show cost savings that can be gained from for example doing away with processes that are no longer fit for purpose.

SMEs, especially those that have been in business for years should look into implementing BPR to cut costs and improve efficiency. They can consider a process by process approach to reduce the number of staff that will have to be diverted to work on their BPR implementation.

Also, another implication of this research is that SMEs should not be put off by the costs that might be associated with BPR. It is possible to reengineer processes without a large outlay on investments. In other words, there can be cost savings without the need to make large sums of money available to a BPR project.

REFERENCES

Abdolvand, N., Albadvi, A., and Ferdowsi, Z. (2008) ‘Assessing Readiness for Business Process Reengineering’, *Business Process Management Journal*, 14(4), pp. 497-511, *Emerald Insight* [Online]. Available at: http://emeraldinsight.com (Accessed: 13 April 2017)

Adeyemi, S. and Aremu, M. A. (2008) ‘Impact Assessment of Business Process Reengineering on Organizational Performance’, *European Journal of Social Sciences*, 7(1), *University of Illorin* [Online]. Available at: http://unilorin.edu.ng/publications/aremuma/Business%20Process%20Reengineering%20on.pdf (Accessed: 13 April 2017)

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

Awolusi, D. A. and Onigbinde, I. O. (2014), 'Assessment of Critical Success Factors of Business Process Re-Engineering In Nigerian Oil and Gas Industry', *Research Academy of Social Sciences*, 3(3), pp. 104-120, *Covenant University* [Online]. Available at: http://covenantuniversity.edu.ng/content/download/34505/237317/file/Awolusi+and+Onigbinde.pdf (Accessed: 09 April 2017)

Ballentine, J., Levy, M. and Powell, P. (1998) 'Evaluating Information Systems in Small and Medium-Sized Enterprises: Issues and Evidence', *European Journal of Information Systems*, 7(4), pp. 241-251, *Springer Link* [Online]. Available at: https://link.springer.com/article/10.1057/palgrave.ejis.3000307 (Accessed: 25 November 2017)

Bevilacqua, M., Ciarapica, F. E., Giacchetta, G. and Bertolini, M. (2005) 'An application of BPR and RCM Methods to an Oil Refinery Turnaround Process', *Production Planning & Control: The Management of Operations*, 16(7), pp. 716-732, [Online]. Available at: http://emeraldinsight.com (Accessed: 26 April 2017)

Bowler, T. (2015) 'Falling oil prices: Who are the winners and losers?', *BBC News*, 19 January [Online]. Available at: http://www.bbc.com/news/business-29643612 (Accessed: 08 April 2017)

Bryant, A. (1998) 'Beyond BPR - Confronting the Organizational Legacy', *Management Decision*, 26(1), pp 25-30, *Emerald Insights* [Online]. Available at: http://www.emeraldinsight.com/ (Accessed: 09 January 2017)

Carlson, D. (2014) 'Collapse of oil prices leads world economy into trouble', *BBC News*, 3 December [Online]. Available at: http://www.theguardian.com/business/2014/dec/03/oil-collapse-leads-world-economy-trouble (Accessed: 08 April 2017)

Central Bank of Nigeria (no date) *N200 Billion Small and Medium Enterprises (SME) Credit Guarantee Scheme (SMECGS)* [Online]. Available at: https://www.cbn.gov.ng/Out/2010/publications/guidelines/dfd/GUIDELINES%20ON%20N200%20BILLION%20SME%20CREDIT%20GUARANTEE.pdf (Accessed: 04 April 2017)

Fu, H. P., Chang, T. H., and Wu, M. J. (2001). 'A case study of the SMEs' organizational restructuring in Taiwan', *Industrial Management & Data Systems*, 101(9), pp. 492-501, *Emerald Insights* [Online]. Available at: http://www.emeraldinsight.com/ (Accessed: 09 January 2016)

Gunasekaranm A. and kobu, B. (2002) 'Modelling and Analysis of Business Process Reengineering', *International Journal of Production Research*, 40(11), pp. 2521-2546, *Taylor Francis Online*, [Online]. Available at: http://www.tandfonline.com/ (Accessed: 6 April 2016)

Hale, A.J. and Cragg, P.B. (1996) 'Business process re-engineering in the small firm: A case study', INFOR, 34(1), pp. 15-27. *Serial Solutions* [Online]. Available at: http://www.serialsolutions.com/ (Accessed: 26 April 2017)

Hammer, M. (1990) 'Reengineering Work: Don't Automate, Obliterate.' *Harvard Business Review*, 68(4), pp. 104 – 112, *Harvard Business Review* [Online]. Available at: http://hbr.org (Accessed: 2 January 2017)

Hammer, M. and Champy, J. (1993) *Reengineering the corporation: a manifesto for business revolution*. London: Nicholas Brearley.

Havey, M. (2005) *Essential Business Process Modelling.* Sebastopol, CA: O'Reilly.

Islam, S. and Ahmed, M.D. (2012), 'Business process improvement of credit card department: case study of a multinational bank', *Business Process Management*

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

Journal, 18(2), pp. 284-303, *Emerald Insight* [Online]. Available at: http://emeraldinsight.com (Accessed: 09 February 2016)

Joshi, K. (2005) 'Understanding User Resistance and Acceptance during the Implementation of an Order Management System: A Case Study Using the Equity Implementation Model', *Journal of Information Technology Case & Application Research*, 7(1) pp. 6-20, *EBSCOhost* [Online]. Available at: http://ebscohost.com (Accessed: 09 February 2016)

Kim, H. and Kankanhalli, A. (2009) 'Investigating User Resistance to Information Systems Implementation: A Status Quo Bias Perspective', *MIS Quarterly*, 33(3), pp. 567-582, *EBSCOhost* [Online]. Available at: http://ebscohost.com (Accessed 09 February 2016)

Krauss, C. (2015) 'Oil Prices: What's Behind the Drop? Simple Economics', *The New York Times*, 12 January [Online]. Available at: http://www.nytimes.com/2015/01/13/business/energy-environment/oil-prices.html?_r=0 (Accessed: 08 April 2017)

Muthu, S., Larry, W. and Hossein, C. (1999) 'Business Process Reengineering: A Consolidated Methodology.' *Proceedings of the 4th Annual International Conference on Industrial Engineering Theory, Applications, and Practice, 1999.* US Department of the Interior-Enterprise Architecture. Available at: http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.90.6302 (Accessed: 09 January 2017)

Nwabugwu, F. (2015) 'MSMEs employ 60m Nigerians, accounts for 48% of GDP', *Vanguard News*, 22 May [Online] Available at: http://www.vanguardngr.com/2015/05/msmes-employ-60m-nigerians-accounts-for-48-of-gdp/ (Accessed: 18 May 2017)

Raymond, L., Bergeron, F. and Rivard, S. (1998) 'Determinants of business process reengineering success in small and large enterprises: An empirical study in the Canadian context', *Journal of Small Business Management*, 36(1), pp. 72-85, *Serials Solutions* [Online]. Available at: http://serialssolutions.com/ (Accessed: 10 January 2016)

Romney, M. (1995), 'Business Process Reengineering', *The Internal Auditor*, 52(3), pp. 24, *ProQuest* [Online]. Available at: http://www.proquest.com/ (Accessed: 09 January 2016)

Vergidis, K., Tiwari, A. and Majeed, B. (2008) 'Business Process Analysis and Optimization: Beyond Reengineering', *IEEE Transactions on Systems, Man, and Cybernetics*, 38(1), pp. 69-82, *IEEE Explore Digital Library* [Online]. Available at: http://ieeexplore.ieee.org/ (Accessed: 13 April 2017)

Ya-Ching, L., Pin-Yu C., and Hsien-Lee, T. (2011), 'Corporate performance of ICT-enabled business process re-engineering', *Industrial Management & Data Systems*, 111(5), pp. 735-754, *Emerald Insight* [Online]. Available at: http://emeraldinsight.com (Accessed: 09 February 2017)

Zellner, G. (2013) 'Towards a framework for identifying business process redesign patterns', *Business Process Management Journal*, 19(4), pp. 600-623, *Emerald Insight* [Online]. Available at: http://emeraldinsight.com (Accessed: 09 February 2017)

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)