

# BUSINESS PROCESS REENGINEERING (BPR). IS ZAMBIA'S MANUFACTURING INDUSTRIES AWARE OF THE BENEFITS THAT THIS STRATEGY BRINGS?

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## **Abstract**

*Business process reengineering is an approach where processes are developed to maximize an organization's potential. The research was conducted on manufacturing firms in Zambia's Copperbelt province. The main objective was to assess the benefits that Business Process Re-Engineering has brought on manufacturing industries. We used the diffusion of innovations theory as explaining theory which presents three phases of the re-engineering process starting with the original process, the development stage and ending with a new re-engineered process. The research identifies the operationalization of BPR strategy on severalties of manufacturing firms; secondly, it further describes which process minimizes cost, but offers best quality, durable and highly innovative products. The research used a quantitative research philosophy, where Questionnaires and structured interviews were applied as to extract information. The sampling framework consisted of eighty (80) manufacturing companies based in Kitwe from a population of 410. The key findings were that 65% of organisations are users of BPR, and that 68.3% of organization has implemented BPR strategy objectives, 51.7% are well aligned to facilitate BPR Implementation process, 65% of managerial workers in every organization are facilitators of BPR implementation. Furthermore, 71.6% organizations have skilled labor to practice to acceptable standards in the implementation of BPR strategy. This study is original as all the data used are reliable and credible, and contributes to limited literature on BPR and it provides a facet analysis of current BPR practices in Zambia.*

*Key words: BPR, organisations, BPR processes, innovation and implementation*

## **1. Introduction and Background**

The term "Business Process Reengineering" has, over the past couple of year, gained increasing circulation. As a result, many find themselves faced with the prospect of having to learn, plan, implement and successfully conduct a real Business Process Reengineering endeavor, whatever that might entail within their own business organization. BPR is the redesign of core business processes to achieve dramatic improvements in productivity. Yih-Chang Chen (2001, p.69) argues that many companies today may not be aware of the strategy and have continued with old indigenous processes to deliver value to their customers. He further describes BPR as discovering how business processes currently operate, how tore design these processes to

eliminate the wasted or redundant effort and improve efficiency, and how to implement the process changes in order to gain competitiveness.

The aim of BPR, according to Sherwood-Smith (1994), is "seeking to devise new ways of organizing tasks, organizing people and redesigning IT systems so that the processes support the organization to realize its goals". Hammer and Champy (1993, p. 32) who are widely referenced by most BPR researchers, coined BPR as the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed. Business activities should be viewed as more than a collection of individual or even functional tasks; they should be broken down into processes that can be designed for maximum

effectiveness, in both manufacturing and service environment. Using traditional BPR, which is more business-oriented, leads to certain imperfections. These methodologies alone are unable to cover project dimensions comprehensively like project management, performance measurement and quality improvement (Mohanty and Deshmukh, 2001).

Some examples of BPR implementation in Africa includes Wrigley Company (East Africa) Limited in Kenya supplying chewing gum throughout Africa and the Middle East. Its annual turnover is said to be over one billion Kenyan shillings (Magutuet al., 2010). Due to high levels of competition with other companies, Wrigley Company implemented BPR, 'known as Web spirit' globally by adopting the supply chain concept and the Enterprise Resource Planning (ERP) technology called Systems Applications and Products Release 3 (SAPR/3) as an enabler. The company contracted Deloitte International that came up with a BPR model known as the Global Reference Model. The BPR project started in 2001, and the implementation took place in the Kenya subsequently in 2004. The project was successfully completed in 2005, improvements were visible and imminent (Magutuet al., 2010)

Another example is when the Government of Ethiopia undertook BPR in most of its ministries to improve a service delivery. This was preceded by starting the Ministry of Capacity Building in 2001 (Debela, 2009). The Ministry conducted training to orient other ministries and civil service offices and develop capacity for the BPR initiatives to ensue efficiencies in public operations. The first attempt of BPR in Ethiopia started in 2004, but was unsuccessful. Later, a new steering committee was created and trained in BPR. The committee saw the second BPR attempt in 2007 yielding the successful

## 2.0 Literature Review

The publication of the fundamental concepts of BPR by Hammer, Davenport and Short (1990) saw many organizations reporting dramatic benefits gained from the successful implementation of BPR. Moreover, there is authenticated evidence to suggest that business process reengineering is vital for any organisation, as most businesses today seek to be competitive (Monczka et al., 2009, p346; Macbeth, 2012 and Dawes, 2014). For example,

results (Debela, 2009). The most notable success story among the ministries was the Ministry of Trade and Industry that had improvements in its efficiency and service provision by reducing cycle time for registration and licensing service reduced from 43 days to 30 minutes, and the staff reduced from 120 to 90 (Debela, 2009; Mengesha and Common, 2007).

It is also evident that most South African companies have focused on core business in order to eliminate waste, capacity building, and differentiation from their competitors. Similarly in Zambia organizations have been striving to remain competitive in quality and service delivery. BPR's success depends on factors such as leadership, process optimization, and utilization of resources (Olowu, 2015). To succeed organizations must have defined systems and supporting business processes guiding the organization towards optimization and excellence.

The research sought to achieve the following aim, questions and deliverables:

## 1.1 Research Aim

To assess the benefits that business process re-engineering has brought or can bring on the Zambian manufacturing sector.

## 1.2 Research Questions

1. Are there any users of BPR in Zambia?
2. How does business process reengineering help minimize cost?
3. How do the benefits of business process reengineering create a competitive advantage?

Companies like Ford Motor Co., CIGNA, and Wal-Mart are all recognized as having successfully implemented BPR. In Zambia, the Zambia Revenue Authority (ZRA) embarked on a business reengineering venture which has helped to simplify clearance procedures thereby improving processing efficiency and enhancing upfront payment of taxes. BPR has also helped the Patents and Companies Registration Agency (PACRA) to provide speedy delivery of services and verification

checks, combating money laundering and financing terrorism (Zambia Daily Mail, 2017). There is no doubt applying BPR in e-government has potential for achievement of goals in public sector organisations and enhancement of public sector performance (Kasemsap, 2016).

Another example on the use of BPR was in 2014 when Indo Zambia bank embarked on a project for Business process re-engineering and upgradation of Core Banking from Flexcube 7.3 to Version 12.x (Indo Zambia Bank, 2017). This was in line with the bank's technology initiatives which are clearly focused on the customer to provide agility in terms of service delivery. BPR would enable the Bank to provide its customers convenience banking on 24 X 7 bases through upgrade of Core Banking Solution platform with integrated delivery channels like ATM, Internet, Phone, Mobile, E-mail/SMS, Kiosk, and Call Centre. As it is evident customers have become dynamic (Slack & Lewis, 2013), so are corporations required to respond to these customer dynamism. The BPR strategy for the bank required use of suitable hardware/middleware/database upgrade, procurement solutions which would assure smooth running of its business in the years to come (Indo Zambia Annual Report, 2014).

As outlined earlier in the introductory chapter, BPR is being planned on South Africa's education system where scholars have suggested a radical redesign or reengineering of the education system (Letseka et al, .2012). Redesigning" means re-examining assumptions and shedding rules of work that are based on outdated notions about technology, people, and organizational goals (Hammer & Champy, 2003). In this case for reengineering to work requires people running companies and working in them to change how they think as well as what they do. It requires companies to replace old practices with entirely new ones. It focuses on breakthroughs—quantum leaps forward, and the creation of value (Letseka et al, .2012; Brown et al, .2013). A vigorous application of BPR on Zambia's manufacturing companies would see manager's switching from their

supervisory roles to more of leaders, facilitators and enablers. Moreover, up-skilling and development of people will allow the said individuals to perform value adding processes themselves (Letseka et al, 2012 cite Hammer & Champy, 2003: p.77). Truly BPR in Zambia's manufacturing sector would weed out inefficiencies that underlie in operations even the downside in some cases workers will be laid off, equipment and technology change (Hammer & Champ, 2003). Thus BPR process is worth implementing as benefits are vast.

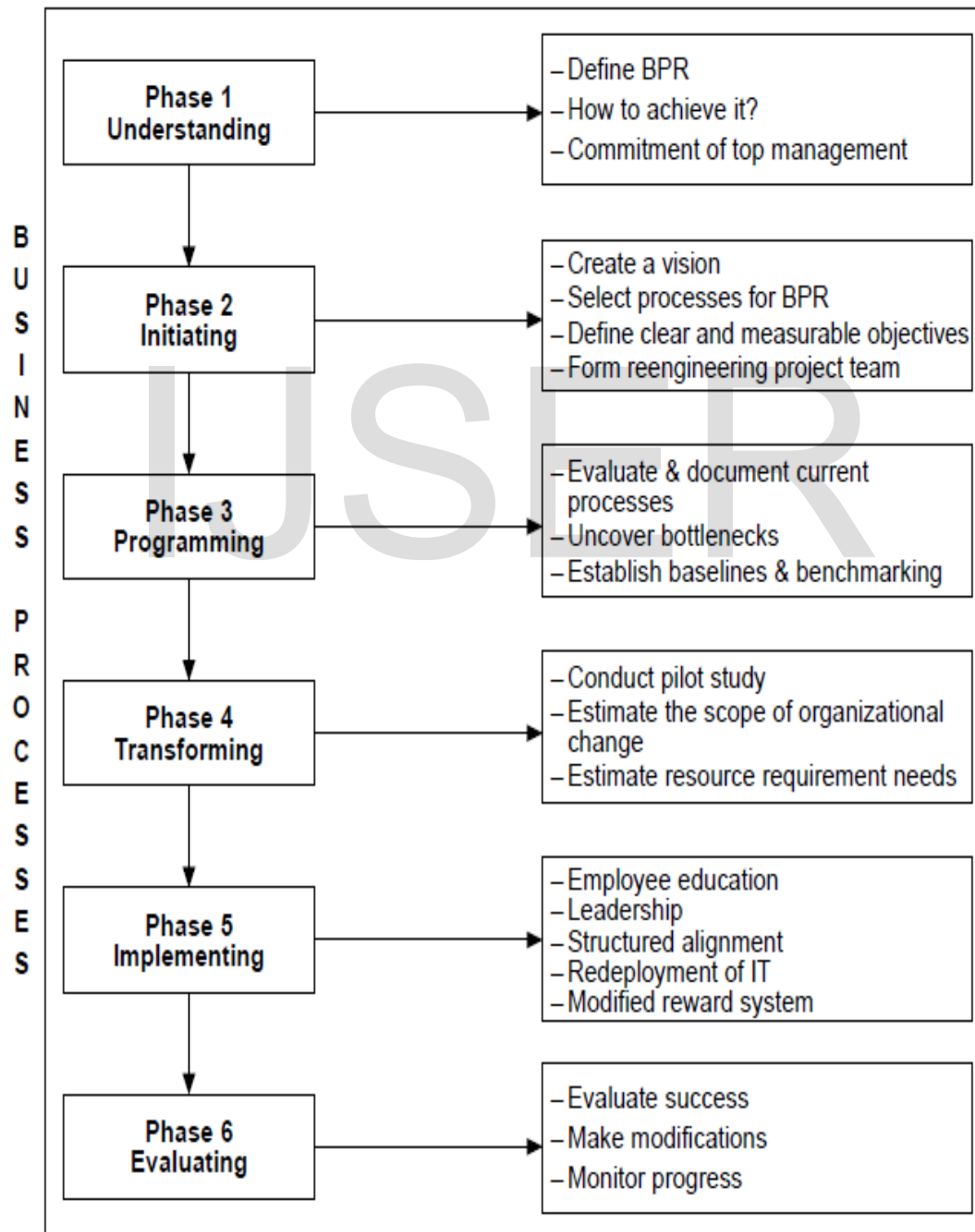
## 2.2 How does Business Process Reengineering help minimize cost?

Some companies adopt change for quality leadership, cost reduction and very few uses this (reengineering) for creating differentiation of products and services offered. Similarly, Marjanovic (2000) conducted a study which supports the fact that business environment is changing rapidly and it requires companies to change their way of doing business to meet the expectations of customers and thus be able to survive. Carlson Thomas (1995) investigated to find out the type of firm that adopts change and concluded that it is learning organization which adopts change and believes in continuous learning and is always ready to accept changes. Hence, it can be concluded that the need to change arises due to customers (diversified), competition (local and global) and change (technology) O'Neill and Sohal (1999). Thus, it is the business environment that is changing with a rapid pace and the only way an organization can survive continual changes in the business environment is to learn to manage and take advantage of change effectively. Muthu, et al (1999) in their study focused on presenting a consolidated methodology for business process reengineering (BPR). Before incorporating BPR, the authors insist on having process maps as an important tool for getting insight of the area that needs radical change. Mansar and Reijers (2007) focused on the concept of redesign (also known as Business process redesign (BPR) which is less fruitful and less risky as compared to reengineering. The focus of study was to

identify the best practices in this field for which a framework was designed having six major components (i.e. Customers, Products/Operation view, Behavioral view, External environment, Organization: structure, and Organization: population) as authors considered them as best practices in implementation. Furthermore, this framework was based on the selection of ten best practices of BPR in the past (most frequently used) i.e.

Task elimination, Task composition, Integral technology, Empower, Order assignment, Specialist-generalist, Integration, Parallelism, and Numerical involvement. Thus, for an organization to remain competitive it needs to focus on product and process redesign, so as to improve quality, minimize cost and increase productivity

A model for BPR below show the stages an Organization can follow in implementing BPR



**Figure 1; BPR Model**  
**Source: Motwani, et al (1998)**

A framework for selecting BPM method should be based on certain pre-defined objectives that require clear perspective and characteristics for reengineering. Objectives can be classified into three categories; communication (clear understanding, simplicity, clarity in terms of process, knowledge and reason for change), analysis (aim to analyze and improve existing process and identifying the areas that are of main concern) and control (managing and monitoring the modeling and later stages).

### **2.3 How do the benefits of business process reengineering create a competitive advantage?**

Jurisch, et al (2012) conducted a study to identify the success factors of BPR in both public and private sectors with the help of previous studies and to highlight the majors' elements that are required for successful implementation of BPR in public sector. Study was based on 67 previous published research papers (29 public sector, 16 private and remaining were general). However, the selections of papers were not on the basis of most citation rather it was on the availability and relevancy of title and abstract. Findings (analysis of previous studies) of this study revealed that there are five dimensions; (1) Project scope: before starting BPR, its scope must be defined along with the realistic expectations, clear vision and goals (2) Top management commitment: is one of the most important dimensions for the success of BPR (3) Availability of resources: sufficient resources (BPR know-how, I.T, and others) are also required to insure success (4) Project management: plays vital role at the

### **4.0 Research findings and interpretation**

#### **4.1 users of BPR strategy in Zambia**

Data collected was prepared for analysis, and presentation of output generated from the study. A descriptive analysis was carried out to analyze the nominal data. Furthermore, a

implementation phase (particularly process analysis and suitable implementation mapping) and (5) Change management: plays exclusive role in the success of change process.

### **3.0 Methodology**

#### **3.1 Research approach, strategy and design**

Questionnaires and structured interviews were instrument tool used in the collection of data. The sampling framework consisted of eighty (80) manufacturing companies based on the Copperbelt province where the study was being conducted. Data collected included telephone – interviews with key research participants. The questionnaire had four (4) main questions which were being asked about implementation of BPR in these manufacturing firms. In terms of measurement, a likert scale with categories; strongly agree (SA), agree (A), neutral (N), disagree (D), and strongly disagree (SD) were employed. The constructed of questions sought general information about BPR, management structures, operations and culture; methodologies, operational techniques, software tools, innovativeness and benchmarking exercises. For interviews; data was 'coded and classified with the aim of making sense on the data collected and to highlight important findings, messages and features'. Thus each interview responses were transliterated, and process repeated until theoretical saturation was achieved and added to the collection of empirical material for codification and analysis (Mackellar, 2015). Furthermore, the recordings were reviewed multiple times to recognise patterns, themes, similarities and differences with literature. The process then grouped the ideas and themes into categories and stored in the research files regression analysis was carried out to determine the strength of the relationship between variables. From the 80 questionnaires that were distributed only 60 were answered and returned. The following are the findings from the research:

**Table 4.1.1 organization has implemented BPR**



	Frequency	Percent	Valid Percent	Cumulative Percent
SA	17	28.3	28.3	28.3
A	24	40.0	40.0	68.3
N	9	15.0	15.0	83.3
D	6	10.0	10.0	93.3
SD	4	6.7	6.7	100.0
Total	60	100.0	100.0	

Source: Compilation of field data (2017)

Based on the results, it is determined in table 4.1.1 that from all 60 respondent, 65% of respondents are users of BPR, and that 68.3% of organization has implemented BPR strategy objectives, 51.7% are well aligned to facilitate BPR Implementation process, 65% of managerial workers in every organization are facilitators of BPR implementation. Furthermore, 71.6% organizations have skilled labor to practice to acceptable standards in the implementation of BPR strategy. The foregoing findings are consistent with previous studies that show every firm wants to

achieve efficiency and effectiveness in reducing cost of production, improving quality of product and also by providing timely and speedy products and services to the customer thus, these requirements are well delivered by BPR (Majed et al., 2001; Hammer & Champy, 2003). It can also be said that manufacturing firms in Zambia have developed a redesign process, reconstructed its structure, and has utilized information technology to develop its process and products

## 4.2 How redesigning a product can increase or decrease the cost of production

Table 4.2.1 Quality Benefits

	Frequency	Percent	Valid Percent	Cumulative Percent
SA	12	20.0	20.0	20.0
A	21	35.0	35.0	55.0
N	16	26.7	26.7	81.7
SD	5	8.3	8.3	90.0
D	6	10.0	10.0	100.0
Total	60	100.0	100.0	

Source; Field Data (2017)

Table 4.2.2 Gain Market Share

	Frequency	Percent	Valid Percent	Cumulative Percent
SA	11	18.3	18.3	18.3
A	21	35.0	35.0	53.3
N	16	26.7	26.7	80.0
SD	9	15.0	15.0	95.0
D	3	5.0	5.0	100.0

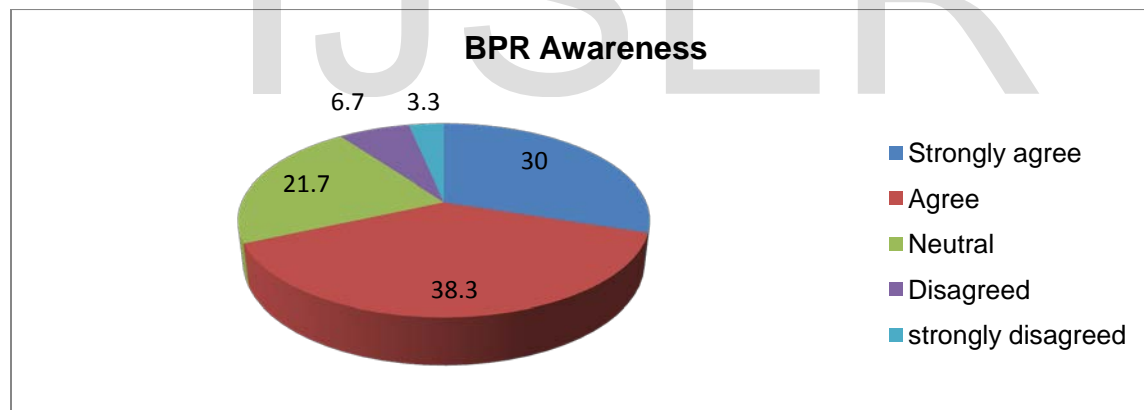
Total	60	100.0	100.0
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The findings from Tables 4.2.1 & 4.2.2 indicates that 55% of manufacturing companies gain a competitive advantage by Improving Product Quality and by reducing Costs through the complete implementation of BPR strategy. 58.3% of these firms have put in place a transition team been established to guide the reengineering Effort to enable a transition smoothly from the old process to the new one. In organizations 53% of Executives and managers who are affected by the process change actively promote and facilitate the implementation of the new process design. To this effect, 41.7% have set in place qualified personal to implement the newly design process facilitate BPR implementation, and 50% of them have further identified the design relationships, how many employees and the Training needed for employees required by the new process. (Sentanin et al., 2008)

56.7% of firms were indicated that they have put in place a prototype testing strategy that is suited to the new process and considers the concerns of stakeholders and a 45% of them who understand the pilot test. 56.6% of firms with the revised process design been pilot tested with satisfactory results before proceeding to full implementation and a proportion of 53.3% have been successful to use benchmarking to facilitate product redesign, further penetrating the market, hence the market shares are evenly distributed. The results are consistent with Hammer, M. & Champy (1993) BPR's concept in terms of cost, quality, service and speed. Some companies adopt change for quality leadership, cost reduction and very few uses this (reengineering) for creating differentiation of products and services offered

When asked about the level of awareness on the use of BPR in their organizations, respondents strongly agree that the organization at large is aware of the BPR strategy. Results show that 30% of the respondents :

strongly agreed, 38.3% agreed, 21.7% neutral, 6.7% disagreed and 3.3% strongly disagreed. As shown on figure 3 below



**Figure 3 Superior performance**

**Source: Authors (2017)**

The study further sought to determine some variables competitive advantage. The results are shown on Table 4.2.3 below:

**Table 4.2.3 BPR Competitive Advantage**

Superior performance	Pearson correlation	1.00
	Sig. (2-tailed)	.000
	N	60

Management structure, operations and Work culture.	Pearson correlation Sig. (2-tailed) N	0.406 .019 60
Technological advancement	Pearson correlation Sig. (2-tailed)	0.488 .635
Methodologies, Operational Techniques, Software tools.	Pearson correlation Sig. (2-tailed) N	.299 0.751 60

The results shows relationship between management structure, operations, work culture and superior performance ( $r=0.406$ ,  $p>0.05$ ). Furthermore, the positive relationship between technological advancement and superior performance is present but weak, ( $r= 0.488$  and  $p> 0.05$ ). Lastly, the table shows that the positive relationship between Methodologies, Operational techniques, Software tools and superior performance but a very weak one. ( $r= 0.299$  and  $p>0.05$ ).

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.406 <sup>a</sup>	.165	.053	1.01089	.165	1.469	7	52	.019

a. Predictors: (Constant), Management structure, operations and work culture

The output shows that the model's independent variable accounts only 5.3% of the total proportion in superior performance represented by  $R^2$  and considering p value 0.019, the model is rendered significant. This means **management structure, operations and work culture** accounts for 5.3% to the increase in performance and the rest 94.7% contributed by other independent variables as well as other factors not studied in this research

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.488 <sup>a</sup>	.238	-.045	1.06177	.238	.841	16	43	.635

a. Predictors: (Constant) technological advancement



**a. Dependent Variable: BPR implementation increases performance(superior performance)**

The output above shows that the model's independent variable does not contribute to the total proportion in superior performance represented by  $R^2$ . This means that technological advancement is a bad predictor of increase in performance and productivity, in simpler terms, we can deduce that the independent variable does not contribute to the increase in performance and 100% of the dependent variable is accounted for by other independent variables as well as other factors not studied in this research. Further, we can also tell from p value that the model is not significant.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F
1	.299 <sup>a</sup>	.090	-.053	1.06594	.090	.627	8	51	.751

**a. Predictors: (Constant), Methodologies, Operational techniques and Software tools.**

**b. Dependent Variable: BPR implementation increases performance(superior performance)**

The output above shows that the model's independent variable does not contribute to the total proportion in superior performance represented by  $R^2$ . This means that Methodologies, Operational techniques and Software tools is a bad predictor of increase in performance, simply means that the independent variable does not contribute to the superior performance.

## 5.0 Conclusions

In this Research, BPR was discussed in depth and width from its origin to the growth and development to the results. Based on the analysis of data collected from the survey, it has been established that users of BPR in Zambia, and have put BPR strategy to practice in different forms and using different procedures, and that more than half of the population manufacturing companies within Kitwe practice and aware of BPR strategy. On the other hand, the study established that there is a relationship between productivity and BPR implementation, and that BPR implementation minimizes cost, improved customer relation and quality of service or product. From the previous discussion of findings it has been established that an organization will gain a competitive advantage by cost minimization, improved product quality and customer satisfaction. Nonetheless,

the study highlighted that the concept of BPR is mostly misunderstood in Zambia and it is used just for IT induction or redesign of an organization. There is need for exclusive and universally acceptable model for BPR as well as a commonly applicable methodology but only through a complete BPR implementation.

## 6.0 Implications

The study has contributed to the overall understanding of Business Process Reengineering, by exploring how various manufacturing companies do it and why its incidence matters, their economic contributions, highlighting the challenges and how to overcome them which were reinforced through previous research findings. The study has likely shed more light on BPR and it provides a strong base for future research.

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