MAKING BUSINESS PROCESS REENGINEERING (BPR) PROGRAMMES WORK: CASE OF KAMAL STEEL COMPANY

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ABSTRACT

It has been shown that improvement in sales revenue obtained through the implementation of Business Process Reengineering (BPR) programmes is ten times the improvement realised through the implementation of Total Quality Management programmes. However, the failure rate of BPR programmes has been shown to be high, about 70%. Most writers have confined themselves to identifying the causes of the failure of BPR programmes. The author argues that the high failure rate of BPR programmes is caused by the fact that the development of their implementation frameworks is not based on the causes of failure of BPR programmes. In this paper the author develops an implementation framework based on the causes of failure of BPR programmes and applies the designed framework to implementing a BPR programme at KAMAL Steel Company Ltd based in Dar es Salaam.

***Key words**: Performance improvement, failure of BPR programmes, BPR intervention framework*

INTRODUCTION

There are at least three dimensions of organisations that can be considered to improve their performance by focusing on organisational processes, organisational design, or on organisational culture, (Flood and Jackson, 1993).

Organisational processes refer to controls and the flows from suppliers' right through to consumers. They include the routines and procedures used to manufacture products or offer services to customers inside or outside the organisation. In short, organisational processes connote the manner in which work or activities are undertaken by the organisation to achieve its objectives. Since flawed organisational processes can negatively affect the performance of any organisation (Hammer and Champy, 2004), intervention through this dimension therefore focuses on improving the efficiency or effectiveness of the processes. *Organisational design* refers to the organisational structure, including lines of communication and authority within and outside the organisation. It is a

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framework within which processes flow. Communication breakdown and the duplication of roles and responsibilities has been shown to be detrimental to organisational performance (Beer, 1979; Clemson 1984; Flood and Jackson, 1993). Intervention through organisational design therefore involves identifying the appropriate type of organisational structure, and patterns of co-ordination and control, which will ensure organisational effectiveness and efficiency in the context of information flows within and outside the organisation. *Organisational culture* refers to the beliefs, values and ways learnt to cope with what has developed during the course of an organisation's history, which tends to be manifested in its material arrangements and the behaviour of its members (Brown, 1995). According to Schein (1988), intervention through organisational culture can be achieved by transforming the artefacts and creations of the organisation.

However, it seems that improving performance through organisational processes is likely to be more effective because this dimension influences, to a large extent, issues relating to the other two dimensions (Hammer and Champy, 2004). For instance, organisation processes are closely related to artefacts and creations, which can be adopted to transform organisational culture. Organisational processes are also related to organisational design, because establishing the manner in which work is to be undertaken (an aspect of organisational processes) also calls for determining the kind of work to be done (an aspect of organisational design).

There are two ways in which performance can be improved through organisational processes, namely through the implementation of continuous improvement programmes such as Total Quality Management (TQM), or through the implementation of radical change programmes like Business Process Reengineering (BPR). It has been shown that financial improvement in terms of sales revenue obtained through the implementation of BPR programmes is about ten times greater than that realised through the implementation of continuous improvement programmes such as TQM programmes (Hammer and Champy, 2004). BPR programmes bring greater financial improvement than TQM programmes because the former is based on double loop learning while the latter is based on single loop learning. Double loop learning requires programmes to question the existing ways of undertaking operations and the objectives to be achieved by the operations. This brings a quantum leap in improvement of the processes. Single loop learning requires making improvements in existing processes without fundamentally altering them. The objectives of the operations are not changed either. Because of such a dramatic impact on organisational performance, BPR programmes have been receiving a lot of attention in the last decades or so particularly in determining the reasons for the failure of these programmes. The task of designing BPR intervention frameworks has been left to a few writers such as Davenport (1993) and Martinez (1995). However, even these writers have not attempted to design a BPR intervention framework, which is guided by the causes of the failure of past programmes.

This paper demonstrates how a BPR intervention framework can be designed, building on the causes that make BPR programmes fail. The designed framework is then put into practice to improve the performance of KAMAL Steel Company Ltd., which is situated in Dar Es Salaam and manufactures a variety of steel products used in the construction and fabrication industry.

LITERATURE REVIEW

Hammer and Champy (2004) define BPR as the fundamental rethinking and radical redesign of business processes to achieve a *dramatic* improvement in critical contemporary measures of performance. BPR is fundamental because the status quo is questioned. In the reengineering process, it is common to ask questions such as why do we do what we do? Why do we do it the way we do? (John and John, 2006). According to Hammer and Champy (2004), BPR is radical because it disregards all systems, processes, and structures, and designs new ones. Moreover, these writers state that BPR is dramatic because it can improve performance ten times more than other methods which seek to bring incremental or continuous improvement such as TQM programmes. Davenport (1993) also shares this view by arguing that, unlike continuous improvement programmes which seek financial improvement in the range of 5% to 10% of sales revenue, BPR programmes can bring about financial improvement up to of 50% of sales revenue. Although this is good news, the failure rate of BPR programmes is alarmingly high. Hammer and Champy (2004) report that the failure rate of BPR programmes is between 50% and 70%. It is this failure rate which has sparked a lot of interest among writers, mainly focusing on determining the causes the failure of these programmes, which are discussed in detail next.

Causes of the failure of BPR programmes

Causes of the failure of BPR programmes can be perceived to fall into four interrelated groups; lack of relevance, lack of commitment among the people involved in the implementation, lack of a holistic perspective, lack of wide stakeholder participation, and lack of enabling conditions for implementation. These causes are discussed in more detail below.

Lack of a holistic perspective: Guangming Cao *et al* (2001) report that the high failure rate of BPR is caused by its inability to have a holistic perspective in the improvement process. They critique BPR as an approach to change management, in which four types of organisational change are classified: change in process, structure, culture, or power distribution. The authors argue that the four approaches often seen to be interrelated, and so management of the interaction is central. BPR, it is argued, is powerful in addressing process change, but incapable of dealing with other types of organisational change. The authors propose that if BPR is to be

applied successfully, either its usage needs to be restricted to change situations where process dominates, or a holistic approach is needed to help adequately address change situations where different types of organisational change surface. According to the above writers, BPR programmes fail because they do not address all four change management approaches.

Lack of relevance: BPR programmes fail because they are not *environmentally, or organisationally relevant*. Environmental relevance refers to the suitability of the programmes as far as existing and future developments in the organisation's industry are concerned. For instance, does the level of competition, demand patterns, technological trends, social and political developments justify the implementation of the programme? Lack of environmental relevance is also identified by Garvin (1995) as a cause of failure.

Garvin (1995) surveyed a number of BPR programmes implemented in various organisations. Where BPR programmes were not successful, it was established that lack of programme relevance with respect to the operating environment of the organization was found to be the main culprit. He concluded that BPR programmes fail because they assume process design can be divorced from rethinking business strategy. Since BPR programmes take an operational view, they target processes that have grown with little rationale. He maintains that in an era of volatile and rapidly changing markets and technologies, reengineering programmes can generate an improved process for competing if well adapted to the environment that exists. This implies that BPR programmes are sometimes irrelevant in certain environmental circumstances. Organisational relevance refers to three issues; the implementation of the BPR programme to many parts of the organisation so that maximum benefits are realised, an appropriate application of Information Technology (IT) to facilitate the reengineering process, and the adoption of the required degree of obliteration of the process in question**.**

The need for implementing BPR programmes in many parts of the organisation is also echoed by Hall *et al* (1993), who state that BPR programmes fail to bring substantial performance improvements due to an insufficient level of breadth levers. They argue that a narrow breadth BPR programme is confined to a single work centre process, or to a process, which does not cut across more than one department. Garvin (1995) goes further by arguing that BPR programmes fail because they often treat processes as unconnected islands. He writes that the success of most businesses depends on how a bundle of their critical processes interact. Garvin (1995) further states that BPR programmes fail because they ignore management processes; the ways senior managers make decisions, communicate, implement, monitor and compensate performance. According to Garvin (1995), the breadth levers should not be considered in isolation and that in any reengineering exercise, the wider these levers are, the higher the chance of success.

Not making use of IT to facilitate the reengineering process has also been identified as one of the reasons for the failure of BPR programmes (Davenport, 1993; Martinez, 1995). Davenport (1993) identifies nine generic roles that can be played by IT in BPR undertakings, which are:

Automation: IT can be used to eliminate human labour.
Informational: IT can help capture information about process performance, i.e., for the purpose of understanding. The captured information can then be analysed by humans.
Sequential: IT can help make possible the change of process sequence from serial to parallel or vice versa, for instance in research and development (R&D).
Tracking: IT can be used to track objects that move in the process.
Analytical: IT can be used to facilitate decision making for instance, the use of Expert Systems to capture, analyse, and process information.
Geographical: IT can be used to co-ordinate activities across distances.
Integrative: IT can also co-ordinate people undertaking certain activities i.e. Case Management.
Intellectual: A computer database of knowledge about business processes can be developed and distributed to various people, hence acting as a training tool.
Disinter mediating: IT can also eliminate intermediaries between processes.

Hammer and Champy (2004) argue that BPR programmes fail because organisations automate instead of obliterating work. Clemons (1995) identifies three types of BPR programmes, which can be perceived to reflect different levels of obliteration, which are (1) business process redesign, (2) process innovation and (3) business revisioning. Business process redesign, which offers the least radical degree of change, entails redesigning processes to make them more efficient or improve service quality. Business process redesign does not require a fundamental change in the purpose of the process or in the larger process of which it is part. Process innovation seeks to make processes more valuable by frequently altering in them fundamental ways. Although process innovation does not change the firm's strategy or vision, it may create new ways for adding value for customers. Business revisioning requires devising a new vision and a new competitive strategy, followed by the development of an entirely new business process to support the new vision. BPR programmes fail because either they select an inappropriate level of obliteration or they do not obliterate, but automate.

***Inadequate stakeholder commitment*:** Certain BPR programmes fail because of the lack of commitment of the people implementing them. Inadequate stakeholder commitment leads to the unavailability of resources (tangible or intangible) required for executing the programmes. Inadequate stakeholder commitment as a cause of failure is also supported by Hall *et al* (1993), who state that BPR programmes fail to bring substantial performance improvements due to lack of leadership commitment.

Lack of wide stakeholder participation: Hammer and Champy (2004) write that, unlike TQM programmes which are bottom up, BPR programmes are essentially top down. This implies that, in the latter, shop floor workers normally do not participate in programme design and implementation. Lack of wide participation is therefore one of the reasons for failure, because the potential users of the reengineered process (shop floor workers) normally revert to the old ways of working, or just go slow, since they were not involved in the design stage. Cooper and Markus (1995) also support the view that lack of wide stakeholder participation is one of the reasons for failure. They hold that BPR programmes fail not because people resist change *per se*, but due to the way they are treated in the change process and the roles they play. According to these writers, people are not treated well because they are denied the right to participate in the design of BPR programmes.

***Lack of enabling conditions*:** One of the reasons for the failure of BPR programmes according to Hall *et al* (1993, is insufficient level of depth levers, which include roles and responsibilities, measurements and incentives, organisational structure, shared values and skills. Depth levers are akin to enabling conditions that facilitate the implementation of BPR programmes. They include a structure for implementation, how performance is to be measured, stakeholder training in operations and strategic management, and the kind of incentive schemes to be used. BPR programmes fail, either because the enabling conditions are lacking, or they are in conflict with the philosophy of these programmes.

The author depicts these enabling conditions in figure 1, which suggests that the selection of appropriate enabling conditions, particularly the organisational structure, may help promote wide stakeholder participation. The installation of other enabling conditions, such as appropriate incentive schemes, and performance measurement systems may improve the commitment of the stakeholders involved. Wide participation of stakeholders enhances the chance of them perceiving the programme as relevant. Furthermore, wide participation also leads to the promotion of stakeholders' commitment. Finally, the implementation of the BPR programme by stakeholders who are committed is likely to make it succeed.
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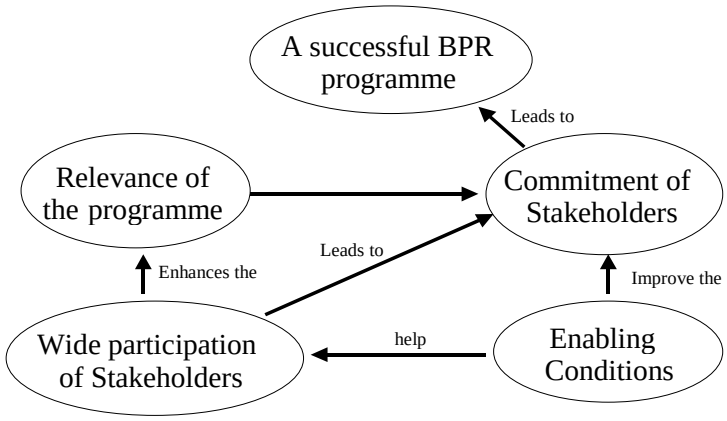
Figure 1. The influence of enabling conditions on BPR programmes



METHODOLOGY

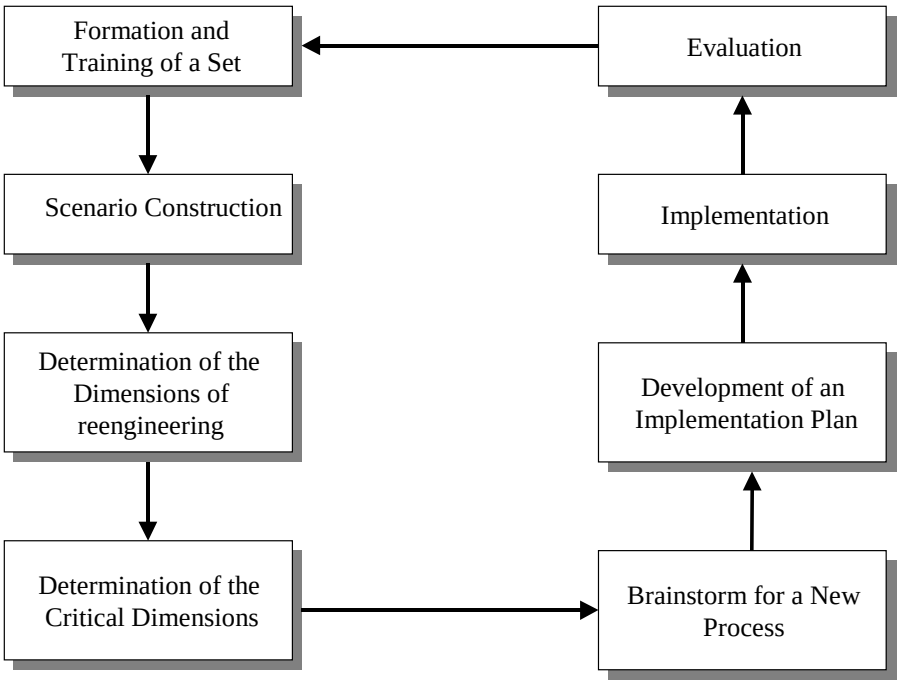
The framework for implementing BPR programmes was established through reviewing literature on the failure of BPR programmes. The factors that contribute to the failure of these programmes were taken into account when designing the framework, which was used to re-engineer the business process at KAMAL Steel Company. The framework took on board the need to make BPR programmes work, which required their design to be based on the causes that make them fail. According to Figure 1, to avoid failure what need to be watched closely are the enabling conditions, wide participation of stakeholders, and relevance of the programme. Commitment of stakeholders can be secured if these three are checked. Hence, for BPR programmes to succeed, we need to:

a) Incorporate the concept of scenario construction so that we can deal with issue of the environmental relevance.
b) Incorporate the facets of a BPR programme so that we can deal with matters relating to organisational relevance. The facets here refer to the scope of the BPR programme, the role of IT in the reengineering exercise, and the obliteration level to be pursued. Note that "scope" is akin to what Hall *et al* (1993) term "breadth levers".
c) Facilitate wide participation of all relevant stakeholders. This may involve the formation of sets (Weinstein, 1995) and even mini sets. A set and mini set are groups/teams of stakeholders involved in the design and implementation of the programme. A set may contain more than one mini set.
d) Have a structure that shows how the set and mini set are related.
e) Align incentive and performance measurement systems with the philosophy of BPR programmes.

f) Offer training (if necessary) to members of the set on issues relating to operations and strategic management.

Note that while items (a), (b) and (c) take care of the relevance of BPR programmes, items (d), (e) and (f) focus on putting in place the enabling conditions for the programmes.

Figure 2. A framework for the implementation of BPR programmes



Scenario construction

A scenario is a coherent and consistent story of what the future will look like to the organisation. It covers areas relating to the level of competition in the industry as well as economic, political, societal, technological, and other factors internal to the organisation in question (Schoemaker,1992; 1995; Porter, 1980). Scenario construction is made up of four stages. In the first stage the set needs to establish the timeframe and context. In order to establish the time frame it is necessary first to list factors that may influence its choice, such as changes in technology, product life cycles, competitors' timeframe, investment intensity, and political timeframes. The type of product(s) the organisation is offering or might offer constitutes the context of the business process.

The second stage involves identifying all the parties that will be affected by the decisions of the set, especially if they are likely to retaliate. The parties may include competitors, consumers, suppliers, regulatory bodies, retailers and distributors, investors, employees, etc. In the third stage, existing trends and conditions that will significantly affect the industry's future should be established. The corresponding degree of impact, whether positive, negative or neutral on the health of the organisation, should be identified and recorded. Unknown trends should be treated as uncertainties. Trends should cover economic, political, societal, and technological areas, and degree of competition in the industry. Identifying uncertainties comprises the fourth stage. An uncertainty is a trend whose impact on the performance of the organisation is difficult to establish. Uncertainties may be related to economic, political, societal or technological issues, or the nature of the competition in the industry. The set should also identify the corresponding impact on the performance of the organisation. A positive, no impact or negative impact categorisation may suffice.

From the trends and uncertainties, possible scenarios can be constructed Schoemaker (1992; 1995). This can be done by putting all similar trends and uncertainties in one group, for instance, all positive trends and uncertainties can be placed in one group, and all the negative trends and uncertainties placed in another group, etc. Since scenarios are stories, they must therefore be checked for internal consistence and coherence. It is possible that more than one scenario may be constructed. Note that scenarios are mutually exclusive.

At KAMAL Steel Company, three scenarios were identified by the set. It was held that in the next four years, the company may either find itself in the growth, survival, or decline scenario.

A Growth scenario. In this scenario the company is likely to capture the local market accompanied by protective measures by the Government to shield the local industry from international competition. Annual economic growth is likely to be

above the 5% mark coupled with a good relationship between the company's industry and its trade unions. Local demand will pick up and competition from other local manufacturers will be weak.

A Survival scenario. In the survival scenario, the company will not be able to penetrate into the international market though local demand for its products will increase. On the other hand, competition from other local manufacturers is likely to be strong, coupled with an increase in the price of steel ingots, the main raw material. The government is likely to allow a small amount of imported products to be sold in the local market, and the annual economic growth of the country may remain stagnant. The relationship between trade unions and the company is also likely not to be very good.

A declining scenario. In this scenario the demand for steel products from local consumers will continue to decline. Absenteeism will also continue to increase, paving the way for a bad relationship between the trade unions and the company. Competition from other local manufacturers will also continue to increase. While the company will not be able to penetrate the international market, the local market will be flooded with cheap steel products imported from abroad.

Determining the dimensions of reengineering

There are three dimensions of reengineering; Scope of the reengineering undertaking, the role to be played by IT, and the appropriate level of obliteration Hammer and Champy (2004). Determination of the dimensions of reengineering requires identifying the scope of the exercise, the IT role to be adopted, and the kind of reengineering to be performed. The dimensions can be determined by answering the question *"given this scenario, what levels of scope or obliteration are needed? Furthermore, what role can IT play*?

At KAMAL Steel Company various dimensions of reengineering (scope, IT role, and level of obliteration) identified by the set through brainstorming and were recorded and shown in Table 1. Apart from the dimensions, the three scenarios identified earlier were also recorded. The table shows that in a growth scenario, the Company should redesign to undertake a business of the manufacturing process. The use of IT is not mandatory in this case. In survival scenario, the plant should pursue the innovation of the R&D process, and redesign the manufacturing process. IT can be used to sequence the R&D activities, shortening the development cycle time. The dimensions of reengineering were established through the literature review (Hammer and Champy, 2004; Schoemaker, 1992; 1995; Weinstein, 1995; Guangming Cao *et a*l, 2001).

Table 1. The dimensions of reengineering

Scenario	Dimension of reengineering		
	Scope	**IT Role**	**Obliteration level**
A growth Scenario	Focus on the manufacturing process	IT not necessary	Redesign the business manufacturing process.
A survival Scenario	Focus on R&D and manufacturing processes	To sequence R&D activities	Pursue innovation of the R&D process, and redesign the manufacturing process.
A declining scenario	Focus on R&D, marketing and manufacturing processes	To sequence R&D activities. Analytical use of IT to facilitate marketing and R&D processes.	Pursue innovation of the R&D and marketing processes. Redesign the manufacturing process.

Source: study findings

In a declining scenario, the Company needs to pursue innovation of the R&D and marketing processes. IT may play an analytical role in R&D and marketing processes. Furthermore, in the declining scenario, the plant needs to redesign the manufacturing process. The use of IT is not necessary for this.

Determining critical dimensions

Critical dimensions are those, which appear relevant to most scenarios, i.e., dimensions with a high frequency of occurrence. The main objective of this approach is to ensure that the identified dimensions of reengineering are able to, cope with any environmental changes, which are captured by the diversity of the scenarios. At the Company, the set decided to reengineer the manufacturing process. For the R&D and marketing processes, it was decided to pursue process innovation. It was recommended that IT should sequence the R&D activities so that the development cycle time is shortened. The analytical use of IT was also recommended for the marketing and in some of the R& D processes, particularly those of a design nature.

Brainstorm for a new process

In viewing of the critical dimensions, the set brainstorms to design new or improved processes. In redesigning the manufacturing process, the set recommended the implementation of a JIT project in particular, the Kanban system to streamline the flow of work in progress. They further recommended that the manufacturing process should first be reorganised into work cells before introducing the Kanban system. On the other hand, process innovation of the R&D process at this plant involved the adoption of concurrent engineering (Davenport, 1993) to shorten the R&D cycle time by undertaking the various activities in parallel. The use of Computer Aided Design (CAD) in the R&D process, especially for design activities, was also recommended. As far as the marketing process was concerned, the use of an expert system for data trends was recommended. The set

noted that a more radical use of IT for the marketing process was not feasible, because of the unstructured nature of the process.

Develop an implementation plan

This is a plan showing how the new process is going to be implemented. It outlines the incentive and measurement systems to be used as well as the organisational structure to be adopted. At KAMAL, the set nominated mini sets, which were to spearhead the implementation process. While the set was concerned with the implementation of the BPR programme at institutional level, the mini sets focused on managing process improvement projects at the level of departments. Members of the mini sets were shop floor workers from the manufacturing, R&D and marketing departments. There were eight mini sets, each with five shop floor workers. Four mini sets were from manufacturing, two were from the R&D, and another two from marketing department. Each member of the set was to lead one mini set composed of his own employees. The set recommended a matrix structure to be used to organise the implementation. The set operated as a team. Each mini set was led by one member of the set.

An incentive system, which is performance related, was proposed. To prevent conflict, measures of performance were identified by the mini sets themselves and agreed by the set and senior management. The identified measures of performance included cycle time for manufacturing and R&D processes, number of products developed per unit time, and the amount of resources used per developed product for the R&D process. Performance measures for the marketing process included the number of new customers secured and the resources used to secure them. It was however noted that since manufacturing, R&D and marketing activities are interconnected; all the above measures of performance are therefore likely to influence each other. To ensure that a given mini set was not penalised because of problems caused by other mini sets, all causes of poor performance that are a consequence of other mini sets were identified and isolated. A schedule for set and mini set meetings was also prepared and distributed to all members.

Implementation

Implementation involves putting into practice the developed plan. At the Company, the schedule of activities, which was prepared by the set and the mini sets, was implemented.

Evaluation

Evaluation is normally done once the process has been implemented. The objective is to check whether the envisaged performance improvement has been attained. If not, then corrective actions need to be taken and the improvement cycle is repeated. By the time this paper was written, the set and their respective mini sets at the Company were on the implementation stage. Hence, what can only be said at

this juncture is that evaluation was to be done using the measures of performance mentioned in the implementation of the plan.

CONCLUSION

In this paper it has been shown how the causes of failure of BPR programmes can be used to design a BPR implementation framework. The paper has maintained that BPR programmes fail because their design is not influenced by the reasons for failure of these programmes. The paper adopted this observation to design and put into practice an alternative BPR implementation framework. The paper has established that BPR programmes fail because they are not holistic, they lack environmental relevance, lack wide stakeholder participation and lack stakeholder commitment and because they have no enabling conditions. The BPR framework proposed in this paper was based on the aforementioned causes of failure of BPR programmes. The framework has incorporated the concept of scenario planning to ensure that BPR programmes are environmentally relevant. The use of sets and mini sets as pointed out in the framework is meant to foster stakeholder participation and commitment. The framework has also stressed the need to put in place enabling conditions before implementing BPR programmes. For instance, the framework requires aligning incentive systems with the objectives of BPR initiatives and the proper selection of an organisational structure for BPR programme implementation. The paper has demonstrated how the framework can be used using KAMAL Steel Company as a case study.

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