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BUSINESS PROCESS REENGINEERING FOR COMPETITIVE ADVANTAGE

Key Factors That May Lead To the Success or Failure of the BPR Implementation (The Wrigley Company)

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Abstract

There are several models and approaches to implementing BPR and an organization should seek to adopt depending on their organizations' needs and capabilities. An organization seeking to undertake BPR must therefore examine some key elements of its organization structure beforehand for maximum gains in the BPR implementation. Three such analysis methodologies are functional coupling, architectural triad and the restructuring framework. This study aimed to establish whether The Wrigley Company East Africa achieved operational competitive advantage by implementing Business Process Reengineering (BPR). In addition, the study aimed to explain the possible reasons why The Wrigley Company may have succeeded or failed to attain competitive advantage by implementing BPR. The study intended to determine if there was improvement in the competitive measures of cost management, customer service, quality and productivity. The study also looked at the BPR implementation process by seeking to understand if documented key success factors for BPR implementation were followed and if the success or failure to achieve competitive advantage can be explained by the key drivers for success in BPR implementation. The research was conducted by collecting primary data from the employees of the Wrigley Company. An online questionnaire based on the competitive measures and BPR implementation key success factors was used to collect the data from which certain findings were deduced. It was established that The Wrigley Company gained competitive advantage by implementing BPR. It was also established that it adopted the BPR practises that are critical for successful implementation. From the research findings, the researcher recommends that organizations seeking to undertake BPR initiatives should first understand the need for changing the organization. They will then need to ensure that they adopt the key success factors for BPR implementation and based on the findings of this research, competitive advantage will be attained.

Keywords: ***Business Process Reengineering (BPR), Competitive Advantage & Success***

1. Introduction

1.1 General Background

The idea of designing businesses has been around for a long time and structured methods of doing this emerged in the 1980's (Dale, 1994). Business process reengineering is perhaps the most popular business concept since the 1990's (Davenport, 1998). Many organizations have initiated reengineering efforts and often use the term reengineering to describe what they do be it incremental process improvements, downsizing to even new information technology systems. This signifies the popularity of the concept of reengineering among businesses and even the public sector. The concept of reengineering has however been around even before the 1990's; (Grover & William, 1998) some scholars argue that it is a derivative of scientific management and further enhanced by the value chain concept (Porter, 1985) popularized by Michael Porter. Business process reengineering also has its roots in quality management and process improvement however the key aspect of reengineering is starting from a clean slate.

The competitive pressure to meet customer expectations is growing at an ever faster pace. The steady improvement of products and services is no longer sufficient to survive in the global marketplace. The need is for a radical change in the way we all work (Macdonald, 1995). Business performance improvement techniques include quality management, process improvement and process reengineering methodologies. Quality management methodologies for example Total Quality Management (TQM), Six Sigma and process improvement techniques like the Japanese Kaizen, Lean, Total Productive Maintenance (TPM) among others focus on improving existing process whereas business process reengineering (BPR) brings about completely new processes. The radical approach to BPR was pronounced as the only means of salvation for organisations trapped in outmoded and outdated business processes and general ways of working (Valentine & Knights, 1998). From a BPR perspective there non value adding processes should be obliterated rather than improving or automating them (Hammer, 1990).

One may argue that reengineering is usually quite disruptive to a business and successful businesses never undertake reengineering efforts. As much as this argument may be true, in quality and process improvement techniques the degree of change, risks and desired performance improvements are much less than those of a reengineering exercise. In general, research shows that there are target improvements of 5-10% for Kaizen versus 20-30% for TQM versus 50-80% for reengineering (Grover & William, 1998).

1.2 The Concept of Business Process Reengineering

There are several models and approaches to implementing BPR and an organization should seek to adopt depending on their organizations' needs and capabilities. (Drucker, 1993) wrote at the wall street journal that "A company beset by malaise and steady deterioration suffers from something far more serious than inefficiencies. Its 'Business Theory' is obsolete." No amount of reengineering will put a company on the right track without the right business theory. This means that organizations should not just jump into a reengineering exercise in the hope of attaining dramatic performance improvements if its underlying business strategy is already in the dogs.

Companies are driven to reinventing the corporation by one of three forces; desperation or crisis (60% of cases); foresight (30%); ambition (10%) (Hammer, 1990). Those driven by desperation must do something radical in order to survive; they have little to lose by leaping to a new, and untried, paradigm. Those with foresight anticipate that they will reach the desperation state unless they do something to avert it. The ambitious will move to a new paradigm to create crises for their competition.

An organization seeking to undertake BPR must therefore examine some key elements of its organization structure beforehand for maximum gains in the BPR implementation. Three such analysis methodologies are functional coupling, architectural triad and the restructuring framework.

Business process reengineering (BPR) is defined as the fundamental rethinking and redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed (Hammer & Champy, 1993). This definition means that BPR requires radical transformation as opposed to incremental change and hence the fundamental question an organization must address before adopting BPR is if there is a compelling business case for change.

There is ample evidence that there is major risk and pain associated with re-engineering the total

organization. Many organizations seeking to implement BPR fail, (Hammer & Champy, 1993) estimate that as many as 70 percent do not achieve the dramatic results they seek. These risks are compounded by the time it takes to accomplish the radical change (Macdonald, 1995). This mixture of results makes the issue of BPR implementation very important. BPR has great potential for increasing productivity but it often requires a fundamental organisational change. As a result, the implementation process is complex, and needs to be checked against several success/failure factors to ensure successful implementation, as well as to avoid implementation pitfalls (Majed & Mohammed, 1999).

Well documented BPR success stories have prompted managers to explore the philosophy however the resulting landslide of companies who have initiated their own process improvement efforts with little payback has made it apparent that a successful outcome to BPR maybe the exception rather than the rule (Marchland & Stanford, 1995). The major cause of the failure usually comes at implementation time because few companies can afford to obliterate their existing business environments and start from scratch.

Reengineering typically involves the use of information technology to enable new ways of working (Grover & William, 1998). Most central is enterprise resource planning (ERP) software which is almost always implemented during a BPR exercise. ERP systems are configurable information systems packages that integrate information and information based processes within and across functional areas in an organization.

Today's ERP systems are an outgrowth of traditional MRP (Material Requirements Planning) systems, MRP was designed to plan only for inventories i.e. based on desired production quantities (Shehab et al., 2004) an MRP system would look at the quantities of raw materials required, quantities on hand and procurement lead times and provide the planner information on when to order the raw materials. An ERP system not only provides all the functionality that MRP would provide but goes further to look at an organizations end to end business from sales planning, customer order management, production scheduling, inventory control, finance, accounts payable and so on.

Although an ERP system is a pure software package, it embodies established ways of doing business. Studies have illustrated that an ERP system is not just a pure software package to be tailored to an organisation but an organizational infrastructure that affects how people work and that it "imposes its own logic on a company's strategy, organisation, and culture" (Davenport, 1998). According to AMR research, the leading global ERP vendors are SAP (43%), Oracle (22%), Sage (6%), Microsoft (4%), others (25%).

1.3 Success/Failure in BPR

The restructuring framework (Marchand & Stanford, 1995) propose that organizations undertaking BPR must look at six dimensions of its organization namely culture, configuration and coordination which represent the firms dynamics and people, technology and information which represent the resources to be redeployed in the engineering effort.

All organizations are supported by an architectural triad (Cule, 1995) which comprises of process, organization and information architectures. Process architecture refers to the way things are done including all manufacturing and human resources practices. Organization architecture values and beliefs of the organization and appertains to people. Information architecture covers all information, whatever its source, whatever its form, that is required to effectively execute the business of the company. An organization seeking to undertake a BPR effort must balance these 3 elements in order to ensure success. In addition (Cule, 1995) shows that organizations will undertake reengineering efforts in two categories i.e. industrial age and information age. Organizations in the industrial age will mainly be cost driven in their efforts and would seek to improve efficiency and reduce costs. On the other hand the information age organization will be vision driven and undergo a complete transformation. The new processes will create will create new classes of worker, intra/inter-company relationships.

In order to succeed in the reengineering effort, it is important to develop a proper understanding on how various functions are coordinated while participating in the same business processes. (Grover et al., 1998) define the ways that these organizational functions interact as functional coupling. Functional coupling can further be analysed into physical coupling and information coupling. Physical coupling refers to exchange of physical objects or documents between functions e.g. the sales department can create a physical document for shipping department to ship the product. On the other hand, information coupling refers to exchange of information between functions as opposed to physical items or documents e.g. the sales function has full visibility of inventories and can trigger a customer shipment by the shipping department. With globalization a major driver for competitiveness and manufacturing facilities located in diverse areas of the globe, it is becoming

increasingly difficult for organizations to run on the physical coupling framework. Reengineering efforts therefore would undertake to reduce physical coupling and move towards information coupling. BPR would generally seek to create cross functional teams that collaborate with one another therefore reducing the number of steps required to execute given transactions. Chrysler reduced the time for manufacturing the Jeep Cherokee from 5 years to 39 months by undertaking reengineering efforts that would bring close collaboration between teams involved in the new product development process.

In considering a BPR initiative, the first and possibly the most important success criteria is to make sure that the rationale for initiating the project is sufficient for justifying the effort and expense of the project (Mayer & deWitte, 1998). The business case is the centrepiece that defines the BPR project; this document should be able to be used by the BPR team as a measure of success (Dale, 1994). The difference between where an organization is and where they want/need to go is usually the compelling business case for BPR. Financial pay back and real customer impact from BPR initiatives are difficult to measure and more difficult to obtain; without a rigorous business case both are unlikely to be realized (Prosci, 1998).

BPR as described above is radical and therefore will require transformational changes in the organizations' processes, technology, job roles and culture (Dale, 1994). A significant change to even one of these areas requires resources, money, and leadership, changing them simultaneously is an extraordinary task. If top management does not provide strong and consistent support, most likely one of these three elements (money, resources, or leadership) will not be present over the life of the project, severely crippling the chances for success of the BPR project (Prosci, 1998). Executive leadership will create an environment for change to take place, without top management sponsorship, implementation efforts can be strongly resisted and ineffective (Attaran et al, 1999). Top management sponsorship in large or global organization should also include the line managers of the various locations that the BPR initiative is to be implemented. Line Management should have the ownership and accountability for organizational readiness (Al-Mashari & Zairi, 1999). A general rule of thumb in BPR implementation is that success can only be achieved if the management are in the driver's seat. BPR requires a "clean slate" or "green field" approach to process redesign. The question that senior executives should be asking is this: "If we are about to start this company, with the knowledge we now have, how would it be organized?" (Macdonald, 1995). Change management, which involves all human- and social-related changes and cultural adjustment techniques needed by management to facilitate the insertion of newly-designed processes and structures into working practice and to deal effectively with resistance (Carr, 1993), is considered by many researchers to be a crucial component of any BPR efforts.

One of the most difficult challenges of BPR implementation is resistance from those the implementers' belief will benefit the most. Underestimating the cultural impact of major process and structural change can lead to failure of a BPR project implementation (Prosci, 1999). Change is not an event but rather a continuous process concerned with leadership with open, honest and frequent communication.

The members of the reengineering team can critically determine the success or failure of reengineering efforts. The team should be multi-skilled and combines experts from various functions of the organisation. An example team may be composed of (Prosci, 1999), some members who don't know the process at all, some members that know the process inside-out, some members representing impacted organizations and some technology gurus. Each person selected should be the best and brightest, passionate and committed in their areas of expertise and some members from outside the company as consultants. Know-how that the organisation needs and it is both time-consuming and expensive for it to build internally They can also provide a firm-wide view, encourage unity between members, and are usually neutral (Davenport, 1993). Success of consultants in BPR is determined by their level of experience in implementing similar projects in other organisations, as well as their ability to direct the re-engineering efforts to areas of substantial benefits to the organisation.

Effective use of project management techniques and managing people-related issues have a crucial role in smoothing the flow of the process redesign stages. A comprehensive piloting of the new design and learning from errors are particularly important for tuning a BPR implementation process to the most successful way. Measurement of project progress should also be maintained continually throughout a BPR project (Al-Mashari & Zairi, 1999). The project management should detail all the activities and resources demanded at any one time during the lifetime of the project. A project office is usually set up prior to implementation of a BPR project to coordinate the diverse activities and resources required at any one time.

Researchers consider adequate IT infrastructure reassessment and composition as a vital factor in successful BPR implementation. The IT infrastructure and BPR are interdependent in the sense that deciding the information requirements for the new business processes determines the IT infrastructure constituents, and a recognition of IT capabilities provides alternatives for BPR. IT infrastructure is highly dependent on an appropriate determination of business process information needs This, in turn, is determined by the types of activities embedded in a business process, and their sequencing and reliance on other organisational processes variance in how activities are performed and the flow of materials, people, and information can be a source of competitive advantage.

Effective process orientation, appropriate level of process Knowledge, documentation of existing processes, appropriate selection of core processes, and use of prototyping are all critical components in successful BPR implementation. Adequate identification of process fits/gaps and evaluation of effectiveness of current processes by making use of appropriate software tools to visualise and analyse. Identifying process owners is also vital to BPR implementation.

1.4 The Competitive Dimensions

The big question is: if an organization implements BPR how then will one measure if the organization has gained competitive advantage? Competitive strategy is about being different; it means deliberately choosing a different set of activities to deliver a unique mix of value (Chase et al., 2003). A company's competitiveness can therefore be defined as its relative position in comparison with other companies in the local and global marketplace. We must however align the competitive strategy that an organization undertakes with its overall operations strategy. There are a number of definitions of operations strategy, we can generally define it as the decisions which shape the long-term capabilities of the company's operations and their contribution to overall strategy through the on-going reconciliation of market requirements and operations resources (Foster, 2001). Pursuing this argument further, we see that the key lies with reconciliation of market requirements and operational resources.

The market requirements are simply the customer requirements and therefore the key to attaining competitive advantage is to differentiate the organization in a manner to appeal to the customers to buy one's products and services (Kenduiywo, 2005). What interests a customer to buy one's products are therefore the competitive dimensions also referred to as Performance Objectives, Competitive Devices, Strategic Choice Attributes, Customer Requirements, Competitive Priorities, Competitive Capabilities and also Operations Priorities (Kenduiywo, 2005).

Given the broad definition, it is clear that there are hundreds of such factors depending on the industry, products & services, customer's culture etc. however from an operations perspective these factors can be broadly classified into 4 dimensions namely cost, quality, timeliness and flexibility (Chase et al., 2003).

Cost performance is generally measured using the amount of money spent on each activity. In pursuing a competitive cost leadership a firms products should generally be commodities and alternatives are readily available (Acquilano et al, 2003). The challenge with cost management for an organization is identify unique ways to deliver enhanced value that competitors will find difficult to imitate and thus providing a basis for sustainable competitive advantage (New & Westbrook, 2004). The best strategy to pursue cost leadership is to use make to stock which is applicable for standardized products that sell in large volumes. Larger production batches keep manufacturing costs down, and having these products in inventory means that customer demand can be met quickly (Rousel & Cohen, 2005). The cost specific performance metrics (Bowersox et al, 2003) would include, total cost, cost per unit, cost as a percentage of sales, inbound / Outbound freight costs, administrative costs, warehouse order processing, direct labour, comparison of actual vs budget, cost trend analysis, direct product profitability, customer segment profitability, inventory carrying, inventory turnover, cost of returned goods, cost of damage, cost of service failures and cost of back order.

Business exists in order to make profit for its shareholders and this is done by converting resources and services that provide value to customers who in turn pay for these goods and services. The customer therefore is the centre of any organizations operations; a supply chain consists of all parties involved, directly or indirectly, in fulfilling a customer request. The primary purpose for the existence of any supply chain is to satisfy customer needs (Lan & Unhelkar, 2006). Customer service measures the ability of the supply chain to meet the expectations of its customers. The customer is interested to receive their products in the required order quantities, on time, flexibility to make changes to SKU composition and consistently reliable.

Quality in its most basic term may be described as Quality as a performance objective is about doing things right (Kenduiywo, 2005). Once an organization has set its quality objectives it needs to

check if the products and services are conforming to the set standard. Quality is the most important performance objective as it has a direct impact on the other objectives as well. From an external or customer perspective, good quality means customer receives the product as he/she expects and has less or nothing to complain about the product. On the other hand from an internal perspective good quality implies that conformance is high in all operations and there is little mistakes meaning that there is improved dependability and speed of production as well as reduction in costs. Specific quality metrics (Bowersox et al, 2003) would include damage frequency, order entry accuracy, picking/shipping accuracy, document/invoicing accuracy, information availability/accuracy, number of credit claims, number of customer returns

Productivity defines the relationship between inputs and outputs. From a supply chain perspective, it usually refers the ratio between output of goods and quantities of inputs utilized to produce the output. Productivity can be described in the form of total productivity and partial productivity (Waters, 2003) where total productivity is the ratio between total throughput and total resources used and partial productivity is the ratio between total throughput and units of single resource used. Total productivity is hard to measure because it is difficult to have a common unit of measure for all inputs therefore lacking objectivity therefore partial productivity measures are used more often. According to (Waters, 2003) they can be classified measured by using equipment, labour capital and energy productivity. Equipment productivity refers to equipment utilization such as the number of customer visits per van, weight moved per forklift. Labour productivity refers to the parameters such as the number of deliveries per person, tonnes moved per shift, or orders shipped per hour worked. Capital productivity looks at the amount stored for each pound of investment, deliveries per unit of capital, or throughput per dollar invested in equipment. Energy productivity measures facts such as the number of deliveries per litre of fuel, amount stored per kilowatt–hour of electricity, or the value added for each pound spent on energy.

1.5 The Wrigley Company

The Wrigley Company (East Africa) Limited is a fully owned subsidiary of the Wm Wrigley Jr company based in Chicago, Illinois (United States of America). The parent company is the worlds' largest manufacturer of Chewing gum with an annual turnover of US Dollars 5 billion and over 20 manufacturing plants in various parts of the world (source: www.wrigleywin.com). The Wrigley East Africa subsidiary operates a chewing gum manufacturing plant based in Nairobi (Kenya) and is the only plant in Africa and Middle East and therefore supplies chewing gum products throughout this region. In addition, the Wrigley Company East Africa Limited also runs the sales operations for Eastern Africa with an annual turnover of over Kenya Shillings 1 billion.

At the turn of the millennium, Wm Wrigley Jr. Company made a management decision to implement BPR in all its subsidiaries globally in order to adopt its business operations to rising pressure of global competition. The organization decided to radically change the way it conducts business globally by adopting the supply chain concept and Enterprise Resource Planning (ERP) technology namely Systems Applications and Products Release 3 (SAP R/3) as an enabler. The organization engaged consultants from Deloitte international and set up a team referred to as the core team in Munich Germany. This team was composed of Wrigley business experts from various organization functions and countries. The core team came up with a model for the Wrigley worldwide business referred to as the global reference model (GRM). This model was approved and after that the rollout project code named WebEsprit was started.

The project (WeBEsprit) was rolled out starting with pilot countries in 2001 and moving on to groups of countries in what was internally named rollout waves. The Kenya business implemented the project in 2004 under Asia wave 3 and completed the process in December 2004 and beginning 2005 with the redesigned business processes.

2.0 Statement of the Problem

BPR implementation requires transformational change and it takes an organization outside its current "rules of the game" (Dale, 1994). Rules of the game can be either explicit or implied that is they can be superficial manifestations of status buried deep within people's beliefs. BPR implementation therefore is bound to confront the beliefs and values of the organization, complex and prejudice interests of employees in particular senior management. This will lead to resistance resulting in failure of the BPR project. It is known that to ensure success one ought to adopt certain best practices and watch out for certain pitfalls.

An organizations' competitiveness can be determined by the cost of its products in relation to that of its competitors. It is about aiming to do things cheaply and give good value at low cost and still achieve a satisfactory return (Kenduiywo, 2005). In analysing quality, one must look at both product quality as well

as process quality (Chase et al., 2003). The product quality is achieved by design and is engineered to meet the target customer requirements. Process quality on the other hand ensures that the end product does not have any defects and therefore meets customer expectations. Timeliness can be broken into three categories namely delivery speed, delivery reliability, and product development speed (Chase et al., 2003). Speed as a competitive dimension requires that one makes the desired product or provides the desired service very quickly be dependable and also develop new products very fast relative to the competition. Flexibility refers to the ability to change the product's volume, variety and nature (Chase, et al., 2003). An organization that can change its product volume depending on demand or offer many other range of products and also be able to customize the product to the customer specification will gain competitive advantage over its competitors who have lesser flexibility in these dimensions.

In Kenya and also all over the world, very often we hear of one organization after the other implementing business process reengineering. It is a big buzzword in the business environments and so popular that one wonders if it actually delivers value or is just hype (Davenport, 1998). Many organizations even use the term reengineering in order to undertake routine cost cutting measures such closing down non-profitable branches, reduce excess staff, change the organization structure etc. Other organizations are simply following the seemingly fashionable trend that other organizations are adopting without analyzing their internal and external business environments in order to justify a reengineering effort (Mayer & deWitte, 1998). This study intends to critically assess the BPR implementation for competitive advantage at the Wrigley Company.

In the late 1990's after the cold war and the advent of globalization, the world became one big market and there was a great desire for most global organizations like Wrigley to improve synergies among its subsidiaries in order to avoid duplication of efforts and performing its activities where it makes most sense. It became apparent for most businesses that you can manufacture products in low cost countries and ship to the more developed markets thereby improving your profitability. The biggest challenge would then be able to manage the logistics of balancing demand and supply and ensure that there is a seamless transition. Wrigley found this to be an opportunity and at the same in order to maintain its leadership position, it needed to take advantage of its geographical presence by implementing a common set of business processes across the entire globe hence the reengineering effort.

A number of studies have shown that success in BPR is not easy and indeed failure is more of the norm than the exception (Marchand & Stanford, 1998). Research shows that a lot of organizations undertake BPR after missing opportunities to undertake continuous improvement. GM and Ford did not wake up one morning to find the Japanese camped in their markets with a new way of making cars. Taiichi Ohno of Toyota conceived the concept of just-in-time manufacturing on a visit to America in the 1930s (Jackson, 1994). There are also a number of organizations that have realized enormous gains, Hallmark a US company reduced its design time by over 200% by reengineering its product design operations (Attaran & Wood, 1999). Wal-Mart reengineered its procurement and distribution processes by extending information to its suppliers from its internal IT systems therefore eliminating the traditional method of mass merchandisers. By doing so, it is estimated that Wal-Mart attained a 2% cost advantage over its nearest competitors which is a tremendous competitive advantage given that the market margins are about 6% (Attaran & Wood, 1999).

Most of these studies have been undertaken in the developed world. Using the case of the Wrigley Company, this study therefore sought to establish the possible reasons why an organization should undertake BPR initiatives, how to measure its success criteria in terms of gaining competitive advantage, and establish good practises for the BPR implementation process or what not to do when undertaking business process reengineering. An organization seeking to reengineer its processes would gain significant knowledge by following an example of a successful organization or avoid the pitfalls of an unsuccessful organization.

The main objective of the study was to examine how BPR can yield a company competitive advantage.The specific objectives were:

(i) To establish if the Wrigley Company succeeded in its BPR implementation by improving its competitiveness.

(ii) To determine the key factors that may have led to the success or failure of the BPR implementation.

3.0 Research Strategy

The research was a case study of the Wrigley Company. Case studies are relevant when conducting research in organizations where the intent is to study systems, individuals, programs, and events (Swanson & Holton, 2005). They are very appropriate when the researcher is interested in process or seeks an in-depth understanding of a

phenomenon because of its uniqueness (Yin, 2003). The purpose of the research was to establish if the BPR program implementation at the Wrigley Company succeeded and in terms of improving its competitive position. The second objective of the study was to provide in-depth insights to the key reasons why the company may have succeeded or failed in its BPR efforts by adopting or failing to adopt the key success factors. Both of these objectives require a detailed understanding of the Wrigley company processes and systems hence the choice. The research interviewed employees of the Wrigley Company to get their perception on various statements relating to the research objective, studies regarding perception have been done in the past using similar design by Nyawade (2002) and Nyambala (2007).

The population of the study were the Wrigley Company East Africa Limited employees. According to the company's human resources department, there are 173 permanent employees. Of these 173 employees, 141 are computer users with 121 and therefore able to provide informed observations as their roles may have been impacted by the BPR implementation. Of these 121 employees 17 are managers, 37 are Supervisors and 67 are non-managerial and non-supervisory level.

The sample was identified using simple random sampling and sample of 39 employees was selected. The central limit theorem states that, as sample sizes increase, regardless of the distribution of a random variable in the population, sample means ($\bar{x}_s$) follow a normal distribution with a mean equal to the population mean (μ) and a variance equal to the variance in the population divided by the sample size used to compute the mean (σ^2/n). In order for this rule to hold true by minimizing the standard error, the general rule of thumb is to use a minimum sample size of 30. Lynch (2005) showed that a when the sample size is 30, the sample mean provides a good approximation of the population.

The primary data was collected by the use of a structured questionnaire; the respondents were presented with a 1 – 5 likert scale statements to select their extent of agreement to closed ended questions meant to gather their opinion in relation to the Wrigley Company gaining competitive advantage by implementing BPR. Lastly, the respondents were requested to provide their extent of agreement or disagreement to a number of statements intended to establish whether the Wrigley Company adopted or did not adopt the BPR critical success factors.

The questionnaire was coded into a web form and uploaded online to http://kenya.questionform.com/public/sap and an e-mail was automatically sent to the target sample. All questions were made mandatory using the web software and the respondents were requested to select neutral where they had no opinion. A reminder e-mail was sent to those respondents who had not completed the questionnaire within a week and more reminders were sent until 30 respondents were available.
The purpose of data analysis is to search for important meanings, patterns, and themes in what the researcher has heard and seen (Swanson & Holton, 2005). The data collected from the questionnaires was exported from the website into an excel worksheet. The data was then be coded using a scale of 1 to 5 where strongly agree was coded as 1, agree as to 2, and so on. Coding can be thought of as data simplification or reduction in that we break up and categorize the data into simpler, more general categories (Swanson & Holton, 2005). The open ended questions will also be coded into the relevant categories.

Once the data was coded it was studied for patterns and simple descriptive statistics measures of frequency, weighted mean, and mode were used. In addition to these measures, a relatively new measure of consensus is also used. An agreement is a concurrence of opinion, a compatibility of observations reached by a team of individuals acting as a whole; it may also considered consensus (Tastle, Weirman & Dumdum, 2005). A complete lack of consensus e.g. 50% strongly agree and 50% strongly disagree, must generate a value of 0 and a complete consensus of opinion must yield a value of 1. An extension to the consensus measure is the strength of consensus which provides the extent to which the team tended to strongly agree with the statements.

4.0 Data Analysis, Findings and Discussions

The study presents the findings on the competitiveness, analysis of the success and failure factors in BPR implementation. The data was analyzed in order to understand the key objective of the study which is to establish whether The Wrigley Company gained competitive advantage by implementing BPR. In addition the responses were further analyzed for potential reasons for the success or failure of the BPR initiative against the key success factors for implementing BPR.

4.1 The BPR and Improvement in Competitive Advantage

The respondents were asked to state their extent of agreement with 31 different statements relating to improvement in competitive advantage resulting from the implementation of BPR. Each of the questions

was framed in a 5 – point likert scale ranging from strongly agree to strongly disagree. The data was then coded with a weight of 1 for strongly agree, 2 for agree, 3 for neutral, 4 for disagree and 5 for strongly agree. The sum of all responses for each question was added up and analyzed as shown in Table 1.

Visual observation of the frequencies displayed in Table 1, shows that more than 65% of the respondents agreed that there was an improvement in the overall competitive advantage of the organization, almost a third (30%) were not sure if there was any improvement with about 8% of the respondents generally seeing no improvement in the competitiveness of the firm. However using the weighted mean of 2.26 we can say that there was overall improvement in the competitiveness of the firm as this number is less than 2.5 which is the accepted level of significance for likert means.

Table 1: Overall responses to improvement in competitive advantage

	Weight	Frequency	Per cent	Cumulative percent	Weighted mean
Strongly Agree	1	159	17.1 %	17.1%	0.17
Agree	2	447	48.1 %	65.2%	0.96
Neutral	3	251	27.0 %	92.2%	0.81
Disagree	4	71	7.6 %	99.8%	0.31
Strongly Disagree	5	2	0.2 %	100.0 %	0.01
Total		930	100. 0%		2.26
Consensus					71%
Strength of Consensus					74%

Source: Research Data

Using the consensus measure, which is a measure of central tendency we see that there is 71% agreement about the effect of BPR on improving the competitiveness of the organization. The strength of consensus also shows that there is strong agreement among the 74% of the respondents that the implementation of BPR lead to improvement in the Wrigley Company's operational competitive advantage. However the data needs to be analyzed in detail in order to isolate the extremes.

Cost Management: The respondents were asked specific questions relating to improvement of the firm in terms of cost management. Table 2 outlines the specific questions and the weighted mean and the consensus measures of the responses. It can be observed that overall cost management is deemed by the respondents to have improved with an overall weighted mean of 2.3 although there was a relatively low level of consensus at 68% which implies that there was relatively low central tendency of the responses.

From Table 2, it can be observed from the top 3 ranked responses that the respondents were in quite in agreement that stock management was significantly improved with weighted means ranking about 2 with high strength of consensus reaching. On the other hand there is almost no change in the actual product cost this is illustrated by the 2 least ranked responses where there is a high level of consensus but the weighted mean is bordering neutral (2.73 and 2.93) and a low strength of consensus of 60%.

Table 2: Responses to improvement in cost management

	Mean	Consensus	Strength of Consensus
Warehouse transfer orders are easier to process	1.60	78%	88%
Raw material inventory holding has reduced	1.90	74%	82%
There has been a reduction in expired stock	2.10	70%	77%
The total costs of running the business have reduced	2.37	74%	72%
Returns of finished goods are less frequent	2.40	75%	71%
Finished goods inventories have been reduced	2.40	65%	71%
There has been a reduction in cost of raw materials	2.73	69%	63%
The cost per box has reduced	2.93	76%	59%
Cost Management(Overall)	**2.30**	**68%**	**73%**

Source: Research Data

Analysing the detailed responses in Appendix I shows that more than 93% of the respondents agreed that warehouse order transfer are easier to process whilst only 26% were in agreement that the cost per box had reduced due to the implementation of BPR. 93% is almost unanimous and one can state with certainty that BPR can significantly improve warehouse operations.

Customer service: The respondents were asked specific questions relating to improvement of the firm in terms of cost management. Table 3 outlines the specific questions and the weighted mean and the consensus measures of the responses. From Table 3, there was overall improvement in customer server with a weighted mean of 2.33 and a medium consensus of 72%, the most important improvement according to the respondents was in the area of aligning both the organization and production towards meeting customer requirements. Order fill rate also improved after the implementation of BPR which may be a direct benefit of aligning the organization to the customer.

Table 3: Responses to improvement in customer service

	Mean	**Consensus**	**Strength of Consensus**
Production is more aligned with customer requirements	2.07	78%	78%
The organization is geared towards putting the customer first as opposed to before	2.07	81%	78%
The number of customer orders shipped as complete has improved (order fill rate)	2.17	79%	76%
Customer orders are shipped on time unlike before	2.23	76%	75%
Most customer orders are filled from existing stock more than before(back-orders)	2.30	73%	73%
Customer complaints have reduced	2.40	75%	71%
The value of customer orders versus the value shipped has improved (value fill rate)	2.53	74%	68%
The level of stock-outs in the market has improved	2.90	71%	59%
Customer Service(Overall)	**2.33**	**72%**	**73%**

Source: Research Data

From appendix I, there is little or no improvement in the external environment that is either reducing customer complaints or product availability in the market where only 30% of the respondents agreed that there has been a reduction in the level of stock-outs in the market. This implies that although the organization used BPR to align itself to the customer, these benefits are yet to be accrued from increased customer orders or improved product availability in the market.

Quality: The respondents were asked specific questions relating to improvement of the firm's quality competitive dimension. Table 4 outlines the specific questions and the weighted mean and the consensus measures of the responses.

From Table 4, the respondents were quite in agreement that there was significant improvement in process quality however there was marginal improvement in product quality. There was a high strength of consensus of more than 80% regarding the significant improvement in information processing as well as warehouse operations.

Table 4: Responses to improvement in Quality

	Mean	**Consensus**	**Strength of Consensus**
It is easier to locate the correct finished products for shipment	1.60	78%	88%
Information about process is readily available	1.83	82%	84%
Customer invoicing accuracy has improved	1.90	75%	82%
The picking of raw materials for manufacturing is more accurate than before	1.97	81%	81%
Accuracy of production bill of materials has improved	2.17	76%	76%
There is less defective products	2.30	76%	73%
The number of returns from customers has reduced	2.50	69%	69%
Quality (Overall)	2.04	78%	79%

Source: Research Data

Detailed analysis from appendix I shows that more than 90% of the respondents agreed that information about process is readily available and locating the correct product for shipment in the warehouse has been significantly improved by the BPR implementation.

The least improvement in the quality dimension was in the area of returns of defective products from the market closely followed by reduction in defective products. This may be partially attributed to the fact that the BPR exercise was not geared towards making any production process improvement and therefore there was no change in the product quality. It could also be possible that since only customer service and quality assurance departments handle returns from customers; there was little information from the rest of the respondents to answer the related questions.

Productivity: The respondents were asked specific questions relating to improvements in productivity at the Wrigley Company after the BPR implementation. Table 5 outlines the specific questions and the weighted mean and the consensus measures of the responses.

From the responses in Table 5, most respondents agreed that there has been increase in total production volumes and production levels per machine. Although this may is true from the survey it may not have been fully influenced by the BPR process.

This is possible to infer because further analysis from appendix I shows that just over 50% of the respondents agree that machine downtime and machine utilization have recorded any improvement in productivity due to the BPR implementation.

Table 5: Responses to improvement in Productivity

	Mean	Consensus	Strength of Consensus
Production volumes have increased	1.83	71%	83%
Production levels per machine have improved	2.13	73%	77%
Waste material has reduced	2.27	78%	75%
Machine utilization in terms of idle downtime is reduced	2.33	74%	73%
Number of idle labour is reduced	2.37	68%	72%
Machine downtime has reduced	2.40	75%	71%
Energy utilization is improved	2.63	72%	66%
Number of people required per machine has reduced	2.67	72%	65%
Productivity (Overall)	2.33	71%	73%

Source: Research Data

Overall improvement in competitive advantage: The responses from the respondents were summarized into the four categories of operational competitive advantage. Table 6 shows the responses.

Table 6: Responses to overall improvement in competitive advantage

	Mean	Consensus	Strength of Consensus
Quality	2.04	78%	79%
Cost Management	2.30	68%	73%
Customer Service	2.33	72%	73%
Productivity	2.33	71%	73%

Source: Research Data

From Table 6, most respondents agreed that there has been most significant improvement in the quality competitive dimension of the organization from the BPR implementation. This is further supported by the detailed analysis where over 76% of the organization agreed that there has been improvement in quality after BPR process. It can also be inferred from Table 6 that all competitive dimensions recorded marked improvement due to the implementation this is because all the weighted means are ranked below 2.5 with the overall weighted mean of 2.26. There is also a high overall strength of consensus of over 70% in all dimensions implying that all respondents.

4.2 BPR Key Drivers for Success or Failure

The respondents were asked to state their extent of agreement with 30 different statements relating to important factors that determine the success or failure of BPR implementations. Table 7 summarizes the overall responses.

Table 7: Summary responses to key drivers for success or failure

	Weight	Frequency	Percent	Cumulative percent	Weighted mean
Strongly Agree	1	162	24.5 %	24.5%	0.25
Agree	2	349	52.9 %	77.4%	1.06
Neutral	3	106	16.1 %	93.5%	0.48
Disagree	4	38	5.8 %	99.2%	0.23
Strongly Disagree	5	5	0.8 %	100.0 %	0.04

Total		660	100.0%		2.05

Source: Research Data

From Table 7 over 77% of the respondents agreed that the Wrigley Company adopted the key success factors that are required to succeed in implementing a BPR initiative. With an overall weighted mean of 2.05 and a high strength of consensus of 78%; it is possible to infer that the respondents were in agreement that the organization adopted the best practises for BPR implementation.

Table 8 details the questions posed to the respondents and the overall means and consensus measure of the responses.

Table 8: Responses to key drivers for success or failure

	Mean	Consensus	Strength of Consensus
Compelling business case for change	1.70	78%	86%
Reengineering team composition	1.74	73%	85%
Information Technology Infrastructure	1.78	80%	85%
Effective Process re-design	2.05	86%	79%
Effective use of Project Management Techniques	2.07	81%	79%
Top Management Sponsorship	2.13	68%	77%
Effective Change Management	2.19	74%	76%

Source: Research Data

From Table 8, it is evident that respondents agreed that there was a very strong business case to implement BPR. The organization also assembled a competent team of to undertake the reengineering exercise. From appendix I, detailed analysis from the respondents shows that over 96% agreed that the organization needed to improve information flow and change its structure from function based to process based.

5.0 Summary, Conclusions and Recommendations

5.1 Summary of the Key Findings and Conclusions

The Wrigley Company managed to achieve competitive advantage by implementing business process reengineering. This explained by the fact that all the four competitive advantage measures of cost management, customer service, quality and productivity had low mean scores. There was also overall high strength of consensus among the respondents that the improvement occurred which implies that the employees were all in agreement regarding the improvement and there was low dissension of the fact that the competitive advantage of the firm was improved by BPR implementation.

The key improvements were perceived by the respondents to be in the areas of process improvement and organizational alignment towards the customer. Little improvement was however noted in the area of cost reduction and productivity. This is explained by relatively high mean responses exhibited by the respondents towards the aspects of product cost reduction and overall cost reduction as well as improvement in the production process.

It is not surprising that the firm managed to gain competitive advantage from the implementation of BPR because the respondents agreed that key factors that assure success in implementation were adopted. Key among the drivers for success in BPR was the compelling case for change which had unanimous agreement among the respondents that the organization had a strong case to undertake the BPR initiative.

It can be inferred that BPR implementation was focussed on process improvement especially in the area of process management and it was not geared towards direct cost reduction or productivity improvement. These sort of improvements may not be attained by implementing BPR alone, they may need to be supplemented by other improvement techniques such as TQM, TPM, Kaizen among other. It is also important to note that there was very good adoption of the key drivers for success in BPR implementation which not only supports the fact that the company succeeded in achieving competitive advantage but may also directly have contributed to the success.

5.2 Suggestion for Further Research

From the findings of the study, organizations should not be apprehensive or scared to implement radical changes as BPR can actually lead to competitive advantage. The key areas of improvements can be achieved in process quality and customer service. It is possible to also achieve improvements in process cost and production efficiency but little improvements will be made in the area of direct product cost.

In order to undertake BPR, the most important factor to ensure success is to undertaken an analysis of the current situation. If there is a good case to undertake the changes, the top management must support the

change and drive it through to success. All the key drivers for success must be taken care of and a lapse in any the factors may lead to failure of the BPR initiative. Good leadership is key to success and must be exhibited throughout the implementation phases.

Organizations should also seek to change the entire organization as opposed to making changes in departments. Information technology infrastructure and ERP software is a key enable to be able to undertake the change and monitor it holistically.

The study was qualitative in nature and further research need to be done using quantitative methods especially for those factors that can be empirically measured. The information can be taken before and after completion of BPR implementation. In the study, the focus was on improvement on competitive advantage after BPR implementation and using the key success factors to explain the results. No attempt was however made to link the key success factors and competitive advantage and test them for statistical significance.

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Appendices

Appendix I: Responses Means and Consensus

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	TOTAL	Mean	Con	Scon
There has been a reduction in cost of raw materials	1	13	9	7	0	30	2.73	69%	63%
There has been a reduction in expired stock	8	15	3	4	0	30	2.10	70%	77%
The total costs of running the business have reduced	2	18	7	3	0	30	2.37	74%	72%
The cost per box has reduced	1	7	15	7	0	30	2.93	76%	59%
Warehouse transfer orders are easier to process	14	14	2	0	0	30	1.60	78%	88%
Raw material inventory holding has reduced	10	15	3	2	0	30	1.90	74%	82%
Finished goods inventories have been reduced	5	13	7	5	0	30	2.40	65%	71%
Returns of finished goods are less frequent	1	19	7	3	0	30	2.40	75%	71%
The number of customer orders shipped as complete has improved (order fill rate)	4	18	7	1	0	30	2.17	79%	76%
The value of customer orders versus the value	3	9	17	1	0	30	2.5	74%	68%

shipped has improved (value fill rate)							3		
The level of stock-outs in the market has improved	2	7	14	6	1	30	2.90	71%	59%
Most customer orders are filled from existing stock more than before(back-orders)	4	15	9	2	0	30	2.30	73%	73%
Customer orders are shipped on time unlike before	2	23	2	2	1	30	2.23	76%	75%
Customer complaints have reduced	2	16	10	2	0	30	2.40	75%	71%
Production is more aligned with customer requirements	6	18	4	2	0	30	2.07	78%	78%
The organization is geared towards putting the customer first as opposed to before	5	20	3	2	0	30	2.07	81%	78%
There is less defective products	2	20	5	3	0	30	2.30	76%	73%
Accuracy of production bill of materials has improved	5	16	8	1	0	30	2.17	76%	76%
The picking of raw materials for manufacturing is more accurate than before	7	17	6	0	0	30	1.97	81%	81%
It is easier to locate the correct finished products for shipment	14	14	2	0	0	30	1.60	78%	88%
Customer invoicing accuracy has improved	10	13	7	0	0	30	1.90	75%	82%
The number of returns from customers has reduced	3	13	10	4	0	30	2.50	69%	69%
Information about process is readily available	8	19	3	0	0	30	1.83	82%	84%
Production volumes have increased	12	13	3	2	0	30	1.83	71%	83%
Production levels per machine have improved	7	13	9	1	0	30	2.13	73%	77%
Machine downtime has reduced	3	13	13	1	0	30	2.	75	71

							40	%	%
Machine utilization in terms of idle downtime is reduced	4	13	12	1	0	30	2.33	74%	73%
Number of people required per machine has reduced	2	10	14	4	0	30	2.67	72%	65%
Number of idle labour is reduced	6	9	13	2	0	30	2.37	68%	72%
Energy utilization is improved	3	8	16	3	0	30	2.63	72%	66%
Waste material has reduced	3	16	11	0	0	30	2.27	78%	75%
Eliminate non value adding processes	14	14	2	0	0	30	1.60	78%	88%
Reduce levels of approvals	5	22	2	1	0	30	1.97	86%	81%
Reduce overall costs of doing business	4	25	1	0	0	30	1.90	91%	83%
Improve information flow at all levels	13	16	0	0	1	30	1.67	73%	86%
Change organization from function based to process based	15	13	1	1	0	30	1.60	75%	88%
Improve the knowledge and skills of its employees	10	16	3	1	0	30	1.83	77%	83%
Use a common information technology platform(SAP R/3)	17	12	1	0	0	30	1.47	79%	91%
Align business process to the customer needs	13	16	1	0	0	30	1.60	80%	88%
Global executive leadership were fully committed to ensuring the project succeeed	20	9	1	0	0	30	1.37	81%	93%
Local management were fully committed to making the project a success	9	12	6	3	0	30	2.10	68%	77%
Management was willing to rethink new ways of doing	5	14	3	7	1	30	2.50	57%	68%

business and start from a clean slate									
The local project leaders had significant authority to make decisions	9	12	7	2	0	30	2.07	70%	78%
Management had mitigated all risks should the project not succeed	0	14	13	3	0	30	2.63	76%	66%
The project team members had sufficient authority to make decions on behalf of the business	6	15	6	2	1	30	2.23	68%	74%
Sufficient resources were availed throughout the project	8	18	1	2	1	30	2.00	74%	79%
Management communicated commitment to not downsize the organization	6	13	9	2	0	30	2.23	71%	75%
Everyone was aware of their changing roles in the organization	3	21	2	4	0	30	2.23	75%	75%
There was regular communication about the project	6	21	2	1	0	30	1.93	84%	81%
Employees were given more responsibilty and accountability	5	19	5	1	0	30	2.07	81%	79%
There was sufficient training for project team members	8	14	6	2	0	30	2.07	73%	78%
There was sufficient training for end users	3	17	5	3	2	30	2.47	63%	69%
Every one was prepared for their roles during and post go live	3	17	8	2	0	30	2.30	75%	73%
Highly skilled consultants were part of the core team	13	12	5	0	0	30	1.73	74%	85%
Power users were from different areas of the business	15	13	2	0	0	30	1.57	78%	89%
Power users were experts in their area of the business	11	13	3	3	0	30	1.93	70%	81%
The project phases, outcomes and resources were well spelt out	5	19	5	1	0	30	2.07	81%	79%
IT infrastructure was ready to support new process.	10	17	3	0	0	30	1.77	80%	85%
SAP Software spanned the entire business and fully supported the new business processes	9	18	3	0	0	30	1.80	81%	84%
A global or local reference model was the framework for new processes	5	22	3	0	0	30	1.93	87%	82%
A fit/gap analysis was carried out to map the old processes to fit to the new ones	3	19	8	0	0	30	2.17	82%	77%