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A Framework for Implementation of Business Process Optimization

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Abstract: *The critical success factors for the business process optimization are considered to be as: top management commitment and right communications, alignment to organisational strategy, reengineering of the right process, behavioural issues of employees regarding motivation and resistance to change must be handled effectively for proper change management, voice of external and internal customers. Internal factors are impact on time, cost, quality and flexibility. The external factors are profits, revenue, cost reductions, customer satisfaction. Considering the above factors for further study, this paper discusses the framework for Business process reengineering implementation to increase profitability and ease of doing the business. The paper presents gate or check-points based approach for the implementation. Key features of the designed framework includes focus on alignment to organisational strategy, uses balance score card method for management, captures voice of customers, ensures involvement of champion / top management, mentions training and communications as a step, promotes feedback, etc.*

Keywords: *Business Process Re-engineering, BPR, Model Framework, Implementation.*

1. INTRODUCTION

Globalization of markets, commodization of products and services, new information and communication technologies challenge the way that organizations traditionally compete, changing the very nature of business itself. New competitive strategies are demanded in response to challenges such as flexibility***, speed of response, quality and innovation.*** (Burke and Peppard, 1995) [10] mention that increasingly companies want to achieve what used to be considered strategic contradictions of low cost with high variety. BPR challenges traditional assumptions and sheds rules transformed businesses underperform. On the other hand (Boudreau and Robey, 1996) [12] criticise that as the re-engineering projects are increasing, the bragging around BPR has been shifted in a way that it reflects higher doubt and uneasiness over its claims.

System re-design must be done keeping in mind human limitations and reactions towards revolutionary changes. Research shows that people are more positive towards incremental change as it reduces stress and ensures continuity. Subsequently the challenge lies in assessing a balanced ***fit*** between the organisation's commitment to change and most appropriate BPR implementation path; identifying the opportunities and threat; combining various efforts for change under a strategic improvement programme by creating knowledge bases (Biazzo, 1998) [9] talks about simple to multidimensional tasks, passage from functional units to process teams, bureaucratic culture to one based on

customer satisfaction and power relationships towards worker empowerment.

Furthermore (Ulbrich, 2006) [54]'s research emphasises on following issues:-

- Management commitment,
- Manageable scope and expectations;
- Project 'anchored' and aligned to the organisational strategy and culture.
- Management of human factors and resistance.
- Proper estimation of technology

Moreover, (Harrington,1998) [30] points out that BPR's failure in organisations is often due to ***misuse of the methodology*** causing misleading results and matrices, improper understanding of the creative part of the reengineering resulting in high cycle time for reaping results. However, (Biazzo, 1998) [9] warns to rise above the organizational interventions and try to go beyond the hype. Subsequently, (Hammer and Champy, 1993) [27] estimated that 50-70% are non-successful reengineering efforts. (Cao,Clarke, Lehaney, 2001) [13]. Considering the higher rates of failure and controversy existing on the subjective factors, questioning whether BPR is a successful phenomenon, instigates the author to take up the research in present business scenario of 2007 for understanding several models that are prevalent and suggest a redesigned framework for effective and better implementation of Business Process reengineering and transformation.

2. RESEARCH OBJECTIVE AND METHODOLOGY

2.1 Research Objective

- To develop a framework for successful implementation of BPR for firm.
- To provide guiding steps to follow for the implementation

2.2 Research Methodology

Literature provides the primary inputs on the various framework taken for implementation of the BPR in any organisation. Analysis on the various literature has been done on their methodology for the implementation BPR process. Further, based on the heuristic approach, a new model is developed considering various success and failure factors on the implementation.

3. LITERATURE REVIEW

3.1 Implementation Issues

(Geisler, 1996) [23] The attributes for failure of Business Process Reengineering includes "***unrealistic expectations***, ***lack of measurable, targeted objectives*** in its methodologies, and the creation of an overly optimistic forecast for forthcoming alterations". In addition, (Vansina and Taillieu, 1995) [55] put forth the lack of ***proper*** methodology or implementation strategy. (O'Neil and Sohal, 1998) [43]through a survey, point out that some implementation problems faced were that of superficial ***planning phase.*** It's found by respondents that the implementation learning curve was consuming more time that shows that its essential to have expert knowledge of business system and the projects is perhaps being under resourced.

(McAdam, 2003) [36]suggests critical factors as ***creativity, vision, benchmarking and IT.*** Few of problems related to business process reengineering that frequently mentioned includes ignorance on the level of ***costs*** incurred by implementing the new process or inability to recognize the dynamic nature of the interdependent processes, the inability to predict the outcome of a radical change (Kovacic, 2001) [28](Crowe,Fong, Bauman and Zayas-Castro, 2002) [18] and identify lack of performance measurement systems which can control implementation.

3.2 Strategy and Goal Alignment with Process

(O'Neil and Sohal, 1998) [43]mention that for goal attainment, BPR must be driven by strategy**.** In similar lines, (Kallio, Saarinen and Tinnila, 2002) [29] agree that Business Process Reengineering concentrates more on developing an architecture for organisation that links reengineered processes to strategy. Also, (Nwabueze, 2000) [40] suggests that strategy must be understood by workers to streamline and standardise processes. (Zhang and Cao, 2002) [58]mention BPR may differ in scope (incremental versus radical changes), depth (procedural versus organizational changes), as well as breadth (intrafunctional to interfunctional to inter-organizational). No dimension of a firm's ***structure, strategy, processes, culture*** and ***technology*** can be applied effectively in isolation. Each must understand the impact and interrelationship of the other in the ***value chain*** (Zhang and Cao, 2002) [58]. **(Refer-Diagram-1).**

The failure or success of a change project, is highly depended on the ***objectives*** of the initiative. (Boudreau and Robey, 1996) [12] define BPR to apply a causal power on organization's performance where the logic employed is of determination, where variation in one variable affects another. Moreover, (Champy and Weger,2005) [15] propose

establishing clear accountability for targets and results, top to bottom in the organization; striking the right balance when defining goals along with cost versus benefit plan for the program.Criticsargue BPR as an analogy for organization's design that portrays an organisation's unacceptable complexities representation of existing socio technical problems.(Biazzo,1998) [9].

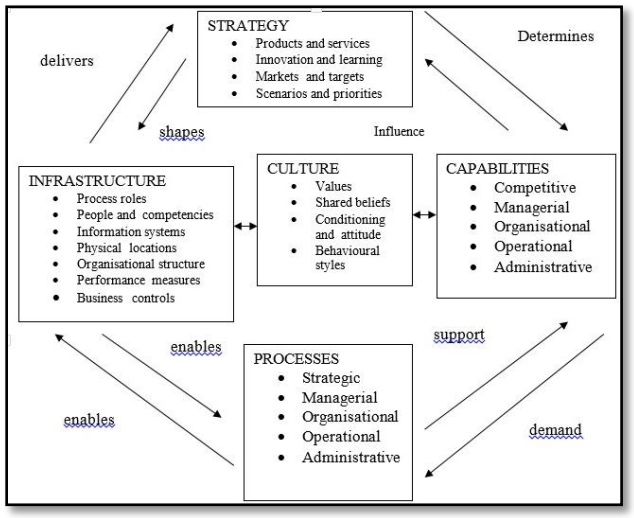


Diagram – (1): Defining strategic architecture
Source: (Colin Coulson Thomas,1997)

"This involves creating the organisational blueprint or roadmap that sets out how we will achieve our strategic direction. Traditionally theorganisation was started with a structure and the work was mapped onto it. The thinking while reengineering is that infrastructure should actually be designed to enable the efficient working of the processes which allow exploitation of distinctive capabilities in support of strategy."

3.3 Balancing, Scoping

Furthermore, the benefits of a new process design in terms of meeting customer requirements or reducing leadtimecan only be feasible if the ***cost*** of achieving thisdoes not outweigh the advantages**.** Achieving a balance between ***technical and economic viability*** is therefore critical. (Robson and Ulah,1996) [46]elaborate that as many organizations have found to their cost, the technical superiority does not ensure translation into improved performances. New processes must be acceptable in ***social and human terms*** to work smoothly and achieve all that it is capable of. (Bal, 1998) [8]agree that as process cuts across the functional boundaries, its complexity is difficult to visualise. Thus, ***scope***of BPR must be broad enough to provide a significant benefit but narrow enough to control easily. Gains would depend on the scale, manageable scope, strategic alignment to potential bottom line improvement.(Peppard and Rowland,1995) [45]. (**Refer-Diagram-2).** It is thus important to ***balance the approach, speed and coverage*** of BPR for sustenance.

(Morris and Brandon,1994) [33] put forth the "***Amoeba scope*"** as a process oriented technique used which recognizes the haphazard evolution of businesses**.(Refer-Diagram-3)**

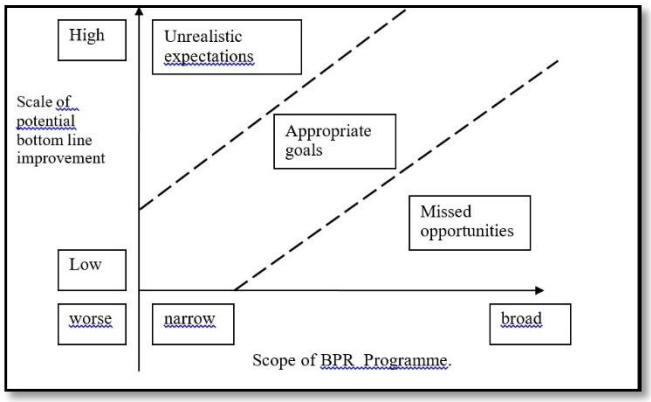


Diagram – (2): Expectations for Improvement
Source: (Peppard and Rowland, 1995)

"The potential gains will relate to the scale and scope of the processes. If the scale and scope are small one should not expect a huge payoff. Similarly if the scale and scope are wide ranging, a greater payoff should be expected. Figure shows a broad means of categorizing the scale and scope of improvement which can be expected given the scale and scope of individual process reengineering initiative."

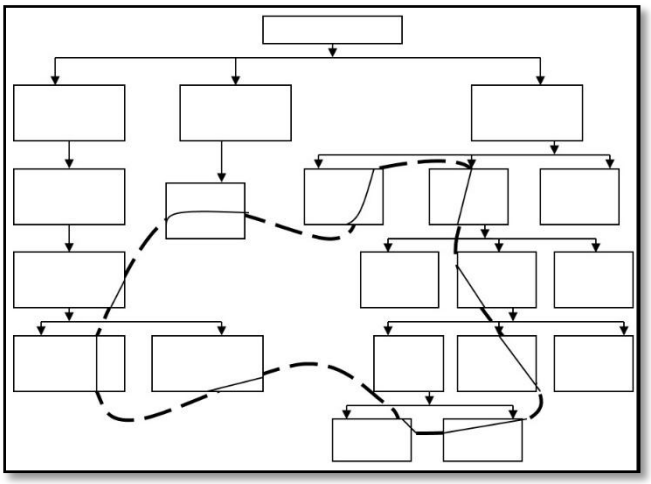


Diagram – (3): Amoeba Scope
Source: (Morris and Brandon,1994)

"The scope of a reengineering project is the boundary of the process that is to be reengineered.While all workflows of a process may not be changed it must be included within the scope of the project."

3.4 Right Process

In addition, (Crowe and Rolfes,1998) [17] mentions that one of the important but most difficult step is selecting the ***right processes*** for reengineering as organization's structure is based on focus of department's individual activities rather than entire processes. Further, (Nwabueze, 2000) [40] criticises that BPR forgets ***work system*** as a 'whole' entity. If independent processes are separated and altered its unrecognised interactions with other processes may render the work system incapable of carrying out its intended function. Also the findings of (Carr and Johansson, 1995) [14] agree with critics that almost all projects are focused ***majorly on internal processes***, and ***exclude suppliers or customers***. (O'Neil and Sohal, 1998) [43]. Pattern of thinking in new stage needs to change from linear and sequential to parallel, integrative and systemic keeping centrepiece as customer.(Miller, 1996) [32] criticises that it's failure to create view that primary concern is in creating customer value and taking performance responsibility for the process. However (Keen, 1996) [30] emphasises that it is important to ***invest to get the right process right***.

3.5 Structure Change

The process designs move from traditional to networking structures intended for higher organisational flexibility for adapting to changes in customer requirements. In addition, (Earl and Khan, 1998) [22] outline ***network processes*** as those that go beyond the boundaries of the firm and ***involve suppliers and customers***. (Biazzo, 1998) [9]. (Obolensky, 1994) [41] brings forth his view that BPR will typically move an organisation from a 'chimney' to a 'grid' to a 'bubble' structure transitioning from "top-down control" to "empowerment" as it makes organisations flexible, responsive, linking strategy, technology and people**.(Refer-Diagram-4).** In a process-based change methodology, it connects the organisation's strategic aims and also includes consideration of human factors for successful implementation of the new process. (Greasley, 2003) [24] On the other hand (Marjanovic, 2000) [35] warns that projects with extensive organisational restructuring have higher failure rates. (Bustard, Kawalek and Norris, 2000) [11]mention that with high inter-process coupling, hierarchical structures and with low inter-process coupling, network structures are recommended.

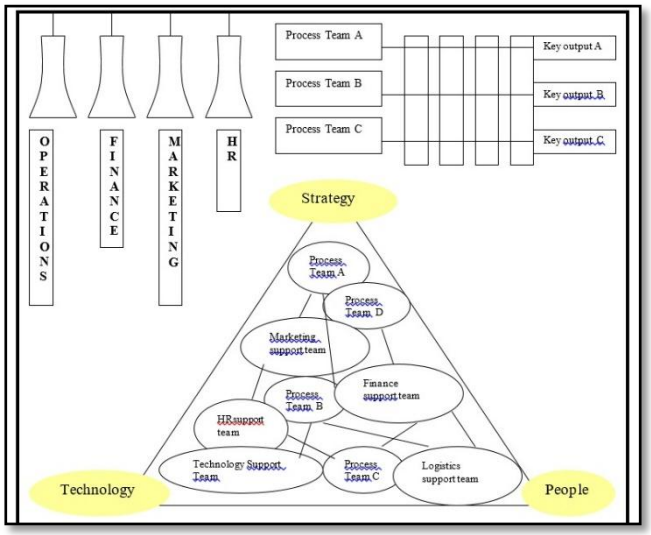


Diagram – (4): The aim is to move from 'chimney' to 'grids' and then onto triangulated networked bubbles .
Source: (Obolensky,1994)

"A BPR will typically move an organisation from a chimney to a grid where newly established process teams cut across the functions. The next evolution is to move to bubbles teams of people who bring their specialisms and abilities to bear to focus on specific processes. Bubble organisations are very fluid with high reliance on open informal culture and excellent communications. An Organisationlinks strategy, technology and people into a triangulated model ensuring flexibility and responsiveness to

change. The culture and leadership in such organisations differ very much from the traditional approaches found in chimney organisations and reengineering often needs a large culture change at all levels." (Obolensky,1994)

3.6 Change Management

Motivation implicitly drives changes**,** recognition for need of change fuels this. The primary step for successful transformation is to make a necessity for changes. (Dooley and Johnson, 2001) [20] Processes in multinational organizations may well cross national boundaries. The differences in cultures between different countries will then present further difficulties. (Chaharbaghi, Fendt and Willis, 2003) [16] agree that often reengineering may not be fully achieved because of the extensive time required for ***cultural shifts*** to take effect.

Consequently, (Cao, Clarke and Lehaney, 2001) [13] discuss a four dimensional classification of organisational change that includes "***Process view*** that looks at changes in terms of organisational processes from suppliers to customers. ***Design view*** recognises the need to consider the forms of organisational structure. ***Cultural view*** sees change in terms of people's relationship to social rules and practices. ***Political view*** sees change in terms of power and potency to influence the flow of the events." Often improvement efforts are driven by reductionist framework of Newtonian mechanics, mechanistic, and the mechanical view of causes that resulted in failure of change management. ***Learning, monitoring, refinement*** andcontinuous improvement should be incorporated into the implementation stages as it should be built into a solution rather than tagged onto the end.(Zucchi and Edwards, 1999) [59].

(Obolensky, 1994) [41]puts forth that an organisation needs to change rapidly not just once but ***continually in order to keep up with the changing market***. Although the initial reengineering programme might be driven top down, ***subsequent change needs to be driven bottom up.*****(Refer-Diagram-5)**

BPR enters for a ***second wave*** and gains importance seemingly as organization develop alliance for coordination across. Moving further work redesign won't be within a company but ***also between the company and suppliers, partners and customers***. This process is called '***X-engineering'*** being initiated in Cisco, Dell, Intel.(Collins, 2004) [19] Decision making power is eventually redistributed downwards and the classical figure of the ***controller*** is substituted by that of the ***trainer.***

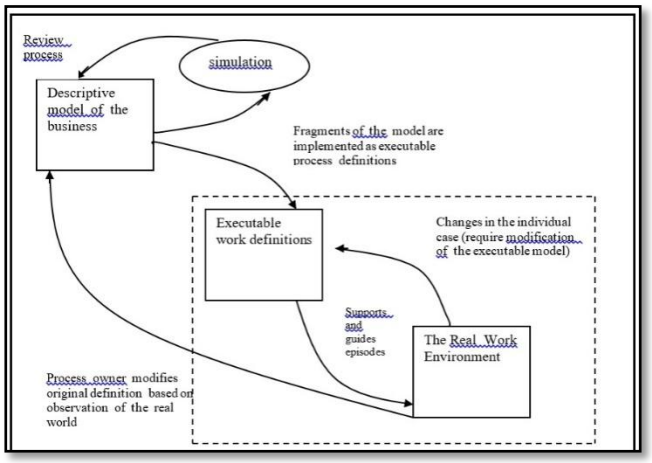


Diagram - (5): Life Cycle of a business model
Source- (Colin Coulson Thomas, 1996)

"Descriptive models are those that attempt to represent the business 'as-is' or 'as desired'.

Executable models are used to support the actual performances of the process in the real world. The important thing is the relationship between the executable model and the real world and how they are kept in step.

Clearly the executable model should be an accurate representation of the descriptive model on which it is based, which in turn must reflect the real world. The challenge is to ensure that the process as executed reflects accurately the process as defined and the executable model is the system that provides adequate support at all the right stages of the process as it should be defined. Feedback loops exist between individual performances and the descriptive and executable models. As process owners experience the transactions, modifications to the process may be identified."

Subsequently, (Biazzo, 1998) [9] apprehends that BPR must not emerge as a banner under whose shade it is possible to ***legitimize organizational change***. In anticipation, he states "*BPR should be 'forgotten'* so that 'rhetoric' will not prevail over 'substance', so that emphasis on the effects of reengineering do not create a 'illusion' that the organizational dilemmas – the dynamic equilibrium between differentiation and integration, centralization and decentralization, standardization and improvisation can be easily resolved."

3.7 Blending Radical and Continuous Improvements

(Murray et al., 2000) [38] mention that while **Total Quality Management** seeks to improve existing internal

processes with routine methods which might not address the customer's changing needs, **BPR** seeks new approaches and designs to leap ahead of competition. In similar line (Schniederjans and Kim, 2003) [50] suggest that TQM, as a powerful ***catalyst*** for teamwork and cross functional leverage, should be implemented after a successful BPR for problem diagnosis in cost, delivery and flexibility is completed. Consequently, (Ahire and Waller, 1994) [7] propose models blending ***breakthrough improvements(BI) with Incremental Improvements(II).***

3.8 Cost of Process Quality

The "process cost model" developed by (Ross,1977) [47] represents systems that does not focus on products or services but on process and analysts place emphasis on the ***cost of each process*** rather than on arbitrarily defined Cost of Quality.(Schiffauerova and Thomson, 2006) [49]. In addition, (Moen, 1998) produces a proactive customer and process focussed quality cost model to measure the benefits of process improvements through the ***Taguchi loss function*** and **Quality Function Deployment** by translating the customer requirements into process requirements. "The loss function describes how sensitive a characteristic is to process deviation from the target value and when it is linked to actual process performance it becomes possible to predict **Poor Quality Cost** for each characteristic."(Moen,1998) [34]. ***However, COQ calculations appear uncommon even among the recipients of the 'Malcolm Baldridge National Quality award' and is mainly due to accounting indiscipline, lack of management focus, inadequate tracking systems, perceived lack of value, inability to quantify intangible opportunity costs or qualitative benefits, economic and lifecycle status of the company. A survey reports that only 34% businesses track their cost of quality improvement initiatives. (Sower,Quarles and Broussard, 2007***) [52]

3.9 Impact of IT

Companies use ***IT enabled processes*** to connect with partners for effective communications, improving process performance by optimizing and remodelling. On the other hand (Attaran, 2003) [6] points out that current ***processes must not be simply automated without being reengineered***. (Wyse and Higgins, 1993) [68] "the role of IT in BPR as having three major aspects:

- knowing what new business opportunities are made possible with computer-based technologies;
- building an active platform of systems and capabilities
- focusing on the process of delivering new systems (Akhavan,Jafari, Al-Ahmadi, 2006) [5]"

On the other hand, authors like (Boudreau and Robey, 1999), believes that "***Information Technology is capable of cancelling the efforts of change***." They argue that "since the technical backbone of automated processes exists as software applications, any future change often requires software reconstruction, inhibiting swift changes" (Akhavan, Jafari, Ali Ahmadi, 2006) [5]. (Attaran, 2003) [6] agree that IT should not be an inhibitor to reengineering because of difficulties in modifying existing systems. However, IT can also facilitate via tools for project management which help structure, estimate, identify, gather and analyse information, control contingencies, provide modelling and flow simulation through computer-aided-systems-engineering(CASE). (Attaran, 2003) [6] It is an opportunity for enhancing coordination, control and governance via integration and easy exchange of data.

4. ANALYSIS OF VARIOUS MODELS OF BPR

4.1 Methodologies

(Harrington, 1998) [26]suggests that process improvement methodology life cycle and product life cycle are alike with a steep rise in usage when they are the desired technique, plateauing and decline because of issues faced.**(Refer-Diagram-6).**(Robson and Ulah, 1996) [46]mention that ***Process Enablers*** are Information Technology(Electronic Data Interchange, Decision analysis systems, expert systems) while Human Resource enablers imply autonomous work teams, appraisals and development programmes. (Al-Mashari, Irani and Zairi, 2001) [3]present in a study that the success of implementation is associated with the use of methodological tools**.** Project planning, process modelling, PERT,CPM, QFD, Gantt charts and simulation techniques are used in implementation. Various techniques used include process activity modelling, information modelling, activity based costing, function economic analysis.(Bal, 1998) [9].

On one hand, studies show that a significant positive relationship exists between the use of BPR software tools and the quality of the resulting process. On the other hand, (Manganelli and Klein, 1994) [39] reveal that ***tool users' productivity*** is expected to drop during early stage of use of a new tool. (Davenport, 1993) [21]suggests that using such tools may cause managers to lose sight of the initiative by trying to ***force-fit.***

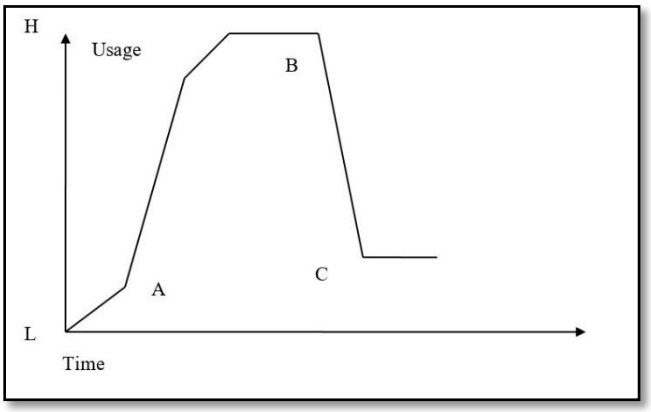


Diagram – (6): Methodology Lifecycle cover
Source: (Harrington,1998)

"Methodologies like management by objectives, quality control circles, statistical process control, five Ss, quality function deployment, Taguchi method, three-way appraisal, have all gone through or are going through this life cycle."

(Obolensky, 1994) [48]mentions ***Brown fields process analysis*** involving detailed current process mapping for reducing non value added time, increasing the effort to duration ratio. However, ***Green fields process analysis*** ignores the current processes, designs afresh for delivering end output desired by the customer and is not constrained by what already exists.(Obolensky, 1994) [48].

The MOTION change management model (for ***Transforming, Identifying and Optimizing core processes***) combines the top-down oriented BPR(which is questioned due to resistance to change) and the bottom-up oriented continuous improvement projects (which experiences a lack of strategic orientation).(Tanner,Schuh,Muller and Tockenburger, 1998) [61].

(Shin and Jemella, 2002) [56]in a case study of Chase Manhattan Bank explain the methodology of '***energize-focus-invent-launch'*** with hypothesis based problem solving on cost, value or competence. Similarly, (Yung and Chan, 2003) [introduce the concept of ***flexible business process reengineering***(***FBPR)*** as a methodology of P-I-R(positioning-improvement-reengineering)wherein usage of tools in desired degree enhances the effectiveness of improvement projects. ***Value delivery system***(**VDS**) comprises of process-intent, in-process control, evaluation and design to increase the project effectiveness employing performance benchmarking. Unlike conventional BPR, FBPR creates a dynamic environment by including human factors assuring less problematic implementation.(Yung and Chan, 2003).[57]

Literature also suggests certain implementation steps as objectives validation, process identification, high level mapping, low level modelling, improvement strategy, simulation and sensitivity analysis followed by dissemination**.**

Few examples of several models as practiced in various case studies are detailed in the (**Diagrams- 7--a, b, c, d, e).**

However the author finds it pertinent to note the following gaps in these models:-

- *Structure for alignment to strategy is not focussed*
- *Voice of customer is not emphasised.*
- *Choosing a process is more a qualitative than scientific data-based decision.*
- *Quantitative emphasis on costs incurred is absent*
- *Performance matrices and project controls are slack.*
- *Behavioural angle is overlooked*

However some models have strengths in certain aspects and lacunae in others. It is important to combine the optimal advantages and learnings from the different practiced models, analyse the strengths and weaknesses against the critical success factors to develop integrated frameworks which need to be flexible for adaptation to different organisational conditions. Its also important to pursue other continuous improvement parameters to increase competitiveness while concurrently promoting the ability of radical rethinking.

Further, in the success story at Honeywell suggest 'Fail-Safing' which comprises root cause analysis for defects and evaluation of alternate solutions. Consequently, The greatest effort seems to be placed on the initiation followed by envision, redesign, evaluate and reconstruct stages.

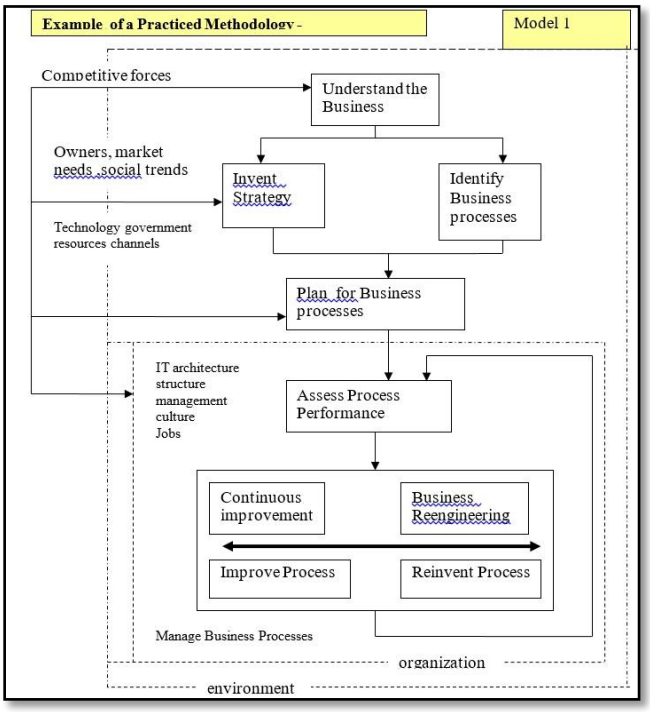


Diagram - (7-a): A framework for sustainable business competitiveness
Source: (Burke and Peppard, 1995))

"Understand the Business-→ position of the company using porter's 5 forces are considered with attention paid to special skills based on which future business can be built.

Invent strategy-→ sets the direction for future growth with analysis of strengths and weaknesses. Once the visions are defined, the process owners , objectives and measures can be determined during the →'plan for business' step.

Managing process decides whether to improve the process performance incrementally or to reengineer the process. Prioritization, Resource allocation and top management commitment are considered with change management process

Assess process performance step-→ decides whether to employ existing processes with continuous improvement or opt for radical reengineering".

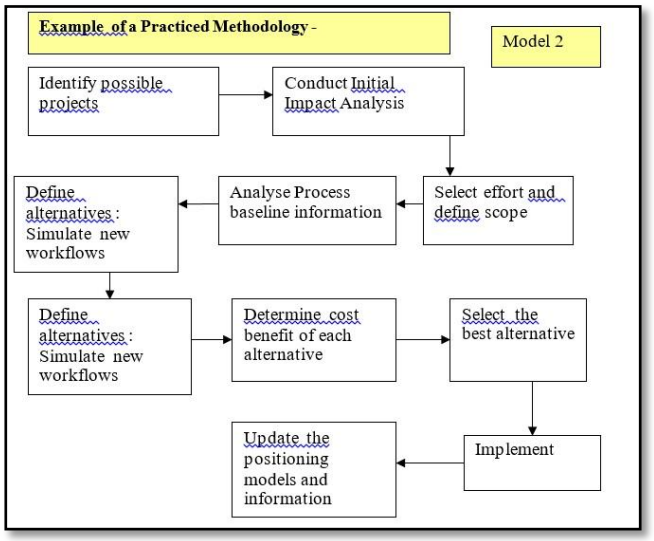


Diagram - (7-b): The nine steps of Dynamic Business Reengineering
Source: (Morris and Brandon,1994)

"The project begins with the reaction to either a corporate wide stimulus for change (market pressure, market opportunity, regulatory requirement or technological advancement). The initial impact analysis determines the potential impact on the operations by considering the departments, processes, policies and procedures impacted and the effect on information ,communication and production capabilities. However it is mainly qualitative without any matrices."

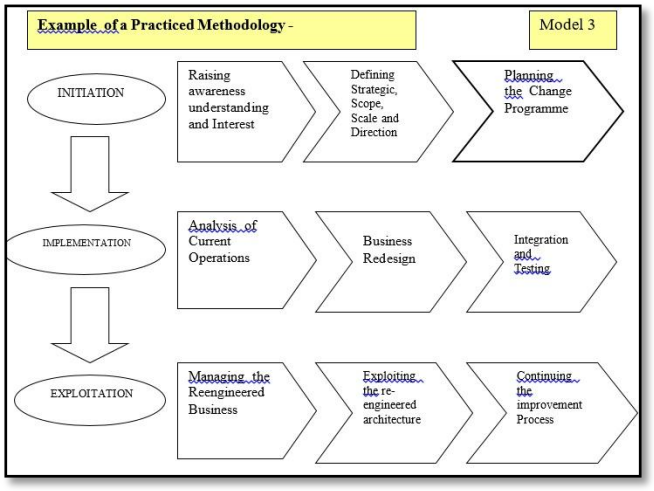


Diagram - (7-c): Stages in the reengineered process

Source: (Colin Coulson Thomas , 1997)

"*The approach seeks to strike a balance between strategy formulation, process redesign and the exploitation and management of the reengineered business.*

The objectives are Programme initiation(building the awareness of business processes, clarify strategic direction, objectives and planning) ; Design and Implementation(mapping current processes, mapping against requirements and redesign)."

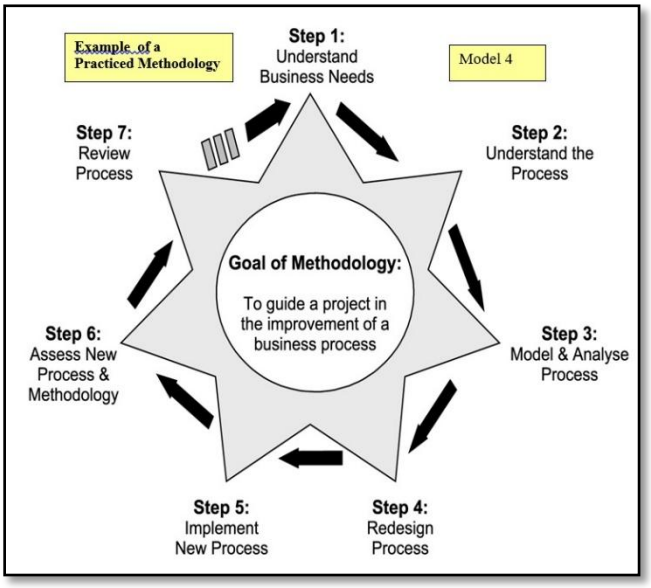


Diagram - (7-d): Example of Practiced Methodology
Source: (Adesola and Baines, 2005)

"Assessment procedure consisted of three categories of measurement based on Feasibility, Usability and Usefulness.

Understanding business needs→ develops vision and strategic objectives, perform competitor analysis, developsorganisational model, evaluating current practice and obtaining approval for resources.

Understand the process→ identify business architecture, scope and define process

Model andanalyse process→verify; validate; measure and analyse existing processes.

Redesign process-→ benchmark, identify performance criteria, identify focus of redesign and IT requirements.

Implement new process→ plan, review change management,communicate, train and roll out

Assess new process and methodology-→conduct process deployment and revise organisational approach

Review new process-→ develop strategic view, target"

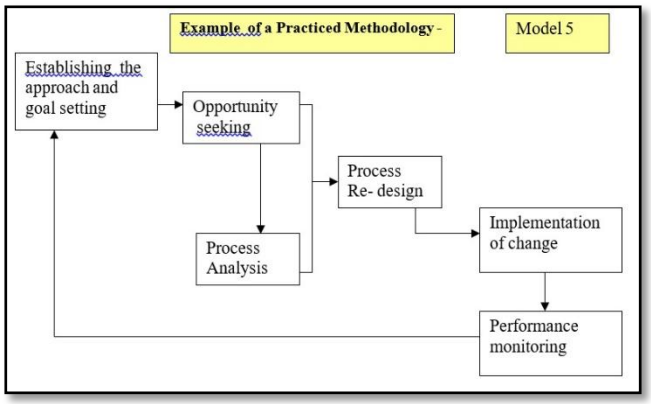


Diagram- (7-e): Six stage COBRA methodology.
Source: (Colin Coulson- Thomas, 1997)

"Establishing an organisation's approach to BPR→ and goal setting effectively sets the corporate direction and strategy for BPR.

Opportunity seeking→ is to identify areas where there is scope for fundamental and strategic change, opportunities for achieving radical breakthroughs in performance and sustainable competitive advantage.

The purpose of the process analysis stage→ is to provide an understanding of existing process 'as-it-is' , its performance in terms of the objectives of the BPR exercise, and the extent to which elements of it might feature in a final solution.

Process Redesign stage→ is to produce a vision of where the organisation would like to be in respect of the area or process under review.

The implementation stage→ includes tackling attitudinal and behavioural issues, measuring and monitoring outcomes, and ensuring that a resulting solution incorporates the means of further learning and refinement."

5. A New Framework for Successful BPR Implementation

There have been some frameworks discussed earlier. The respondents of a survey of 50 experts conducted mentioned that most methodologies used were ones produced theoretically by consultants. The respondents did not prefer to table any universal framework which they wanted to replicate in the next project and felt that certain gaps need to be bridged and customised. Six Sigma(DMAIC),PDCAand such tools were used for mainly

and only the specific process re-***design*** phase and not as a end-to-end framework which can start from business strategy and process selection as is required in a full BPR exercise.

Survey showed the importance of alignment to strategy, customer, selection of right process, focus on human aspects, top management involvement and lacunae on costs.

In order to address weaknesses of previous implementation models, the author has

suggested a framework which attempts to create control mechanisms while allowing scope for flexibility and customisation in the new process design stage. The author draws the best practices from the methodologies discussed in Literature Review.

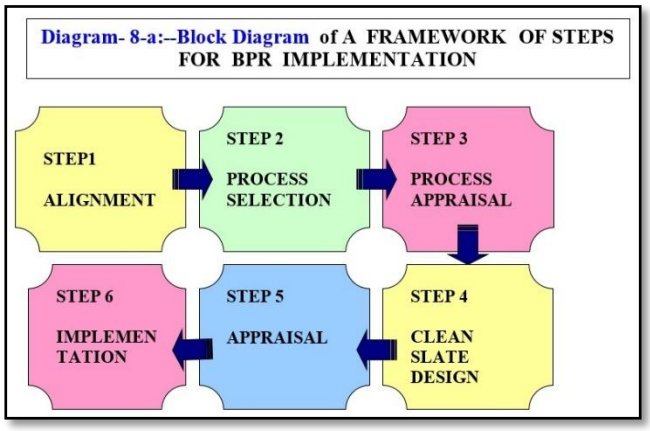
As (Yung and Chan, 2003) [57] point out, there are no ***universally*** good process models. Their suitability is determined by how well they meet the delivery system's process intent, by minimizing the non value adding activities and by constantly improving business quality deliverables. Businesses that successfully implement both linear and nonlinear improvement schemes look beyond past performance or what their competitors are doing, beyond what satisfies the customer today to the needs in the future.(Yung and Chan, 2003) [57].Also (Gunasekaran, Chung and Kan, 2000) [25] mention there is not a set of rules adhering to which, success can be ensured.

Business models are only relevant within the context in which they are considered, a ***change in context*** requires a simultaneous change in business models. In a dynamic environment, changes in variables are non-linear in nature. These differences in patterns of change imply that businesses operating in different environments need to address different issues (Chaharbaghi, Fendt, Wilis, 2003) [16]. (Adesola and Baines, 2005) [1] suggest feasibility, usability and usefulness as important features for any BPR framework.

In line with the strategies for reengineering suggested by (O'Brien, 1995) [44], the author has emphasised in this suggested framework on the '***high impact strategy'***(concentrating on selecting and reengineering few chosen processes) instead of '***exhaustive strategy'***(overall plan to reengineer all processes with prioritisations as required).

Diagram- 8-a gives the overall block diagram of the suggested framework.

Diagram- 8-b gives the steps under each section of the block diagram.



5.1 Highlights of the Framework Developed

This model has differentiations from the models discussed earlier. Most models concentrate only on the basic 'New Process workflow design', but it is often the other parallel corollary factors which, if ignored, can overpower the best process designed. This framework incorporates also the learnings on such success factors and interdependencies from the research.

5.2 Key Features of Designed Framework

There are GATES OR CHECK-POINTS for ensuring that the desired activities have been undertaken and there is CHAMPION SIGN OFF from one major STEP to another.

- Focuses on ' Alignment to Organisational Strategy'
- Creates a link between the process reengineering initiations and the performance matrices in the Business Balanced Score Card of the Organisation.
- Data based structured methodology on 'Process Selection'
- Captures Voice of Customer
- Involves all stakeholders in a 'Process appraisal' status
- Has Cost Benefit sign offs at all Stages
- Ensures Champion/Top Management Review and Signoffs
- Ensures IT involvement
- Focuses on actionables of Human Issues
- Incorporates Motivation in form of Recognitions
- Mentions Training and Communications as a Step
- Promotes Feedback

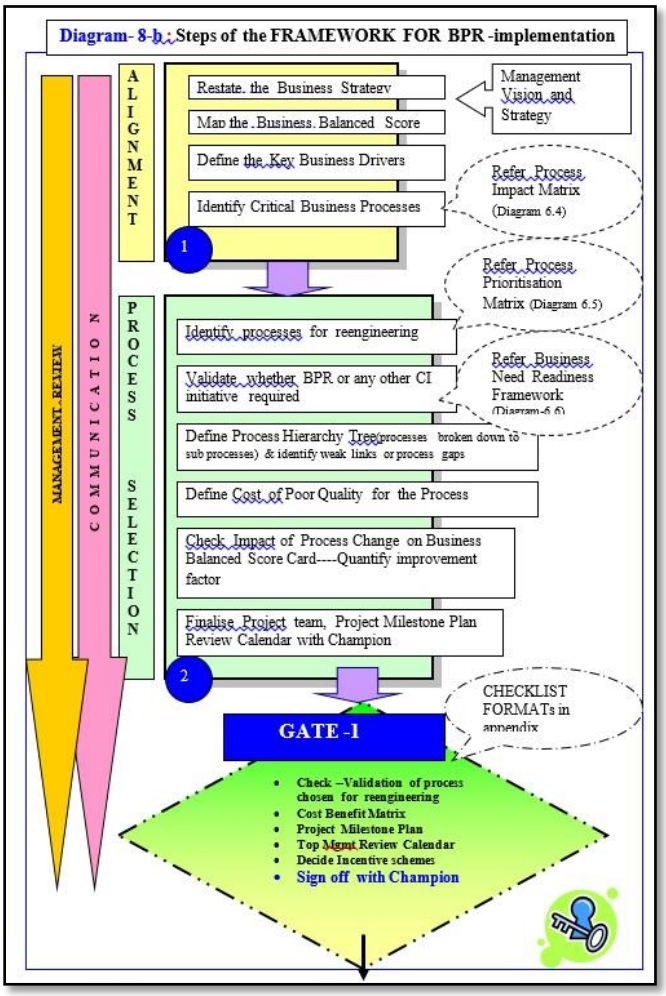
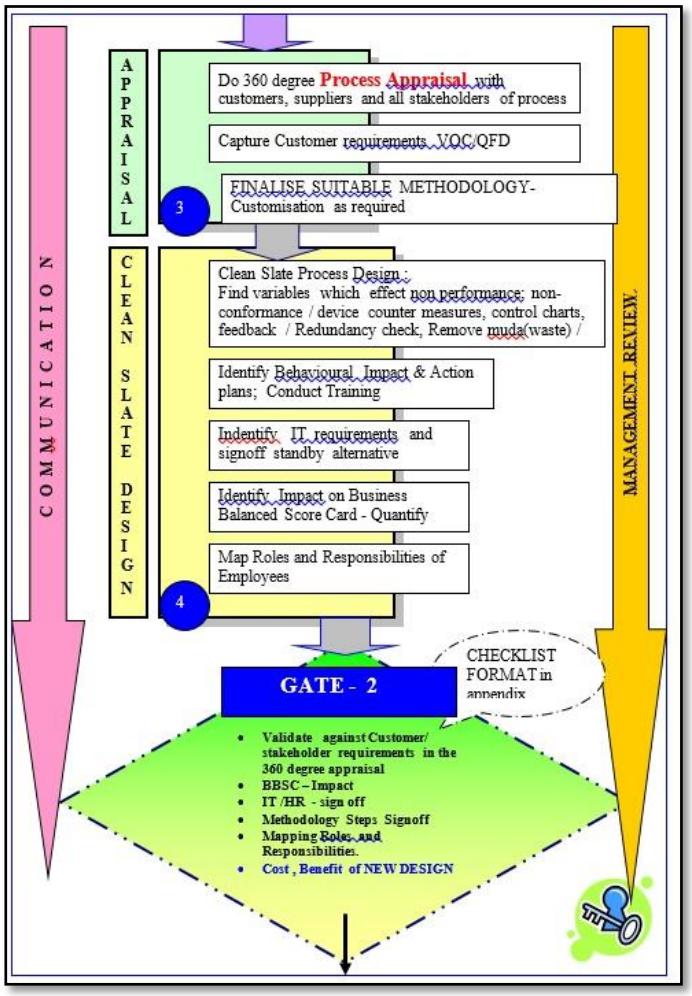
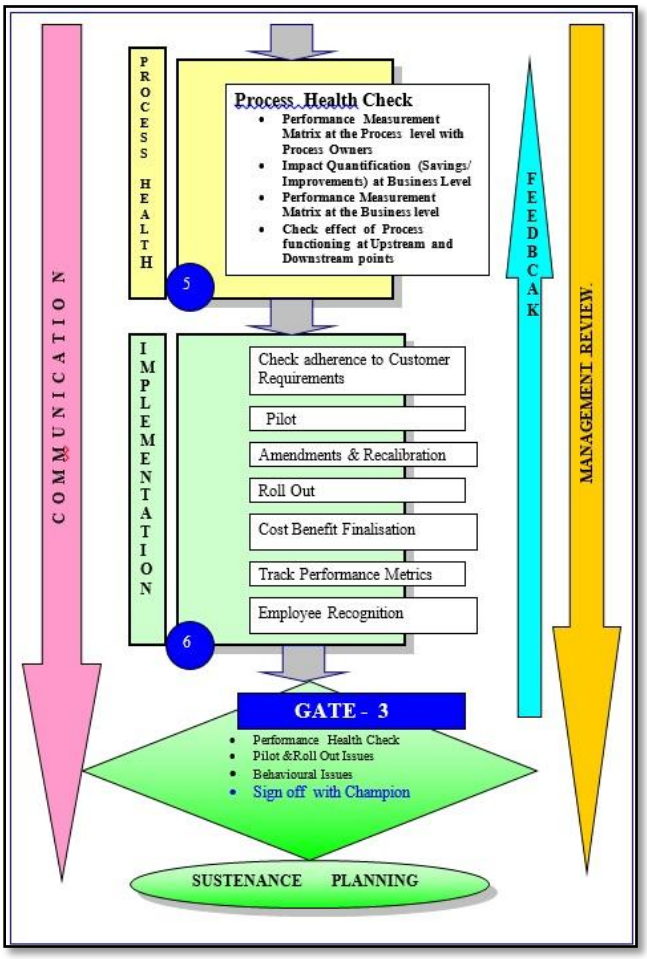


Diagram- 8-b : Steps of the FRAMEWORK FOR BPR -implementation
MANAGEMENT REVIEW
COMMUNICATION
ALIGNMENT
Restate. the Business Strategy
Map the .Business. Balanced Score
Define the Key Business Drivers
Identify Critical Business Processes
Management Vision and Strategy
Refer Process Impact Matrix (Diagram 6.4)
1
PROCESS SELECTION
Refer Process Prioritisation Matrix (Diagram 6.5)
Identify processes for reengineering
Validate whether BPR or any other CI initiative required
Refer Business Need Readiness Framework
Define Process Hierarchy Tree(processes broken down to sub processes) & identify weak links or process gaps
Define Cost of Poor Quality for the Process
Check Impact of Process Change on Business Balanced Score Card----Quantify improvement factor
Finalise Project team, Project Milestone Plan Review Calendar with Champion
2
CHECKLIST FORMATs in appendix
GATE -1
Check –Validation of process chosen for reengineering
Cost Benefit Matrix
Project Milestone Plan
Top Mgmt Review Calendar
Decide Incentive schemes
Sign off with Champion


COMMUNICATION
MANAGEMENT REVIEW
APPRAISAL
Do 360 degree Process Appraisal with customers, suppliers and all stakeholders of process
Capture Customer requirements .VOC/QFD
FINALISE SUITABLE METHODOLOGY- Customisation as required
3
CLEAN SLATE DESIGN
Clean Slate Process Design :
Find variables which effect non performance; non-conformance / device counter measures, control charts, feedback / Redundancy check, Remove muda(waste) /
Identify Behavioural Impact & Action plans; Conduct Training
Indentify IT requirements and signoff standby alternative
Identify Impact on Business Balanced Score Card - Quantify
Map Roles and Responsibilities of Employees
4
CHECKLIST FORMAT in appendix
GATE - 2
Validate against Customer/ stakeholder requirements in the 360 degree appraisal
BBSC – Impact
IT /HR - sign off
Methodology Steps Signoff
Mapping Roles and Responsibilities.
Cost , Benefit of NEW DESIGN



Step1 & 2: ALIGNMENT & SELECTION (Refer Diagram-8-b)

This step pays a lot of importance on CHOOSING THE RIGHT PROCESS ALIGNED TO ORGANISATIONAL GOALS AND STRATEGY. The Business Balanced Scorecardis an established performance measurement system which monitors key parameters related to Customer, Financials, Learnings and Internal Processes. The impact of the process to be reengineered is suggested to be checked on these business performance measures to make sure that changes in the process performance will effect the business results.

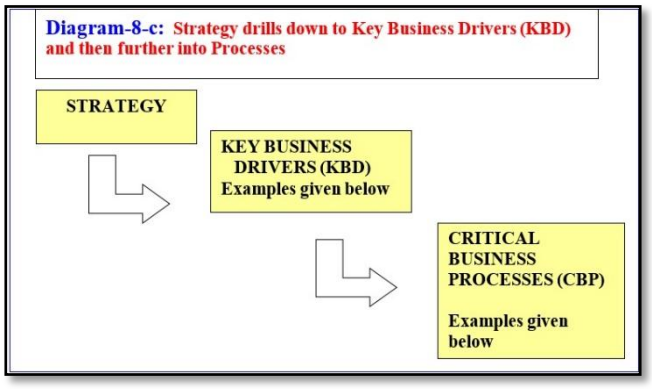


Diagram-8-c: Strategy for Key Business Drivers

Diagram-8c shows that strategy can lead to key business drivers like quality, price, service etc.. The critical business processes can be linked to the key business drivers as shown in the ***Process Impact Matrix*** of **Diagram- 8-d** so that we know which process impacts which business driver.(Burke and Peppard, 1995)

Diagram-8-e*Process Prioritisation Matrix* helps in selecting the right process for reengineering. Critical Success factors(CSF) for the Business are listed. The Number of CSF, that any process impacts give an approximate and relative measure of its importance. There are at least four criteria that can be used to guide the selections: the strategic importance of the process, its current health, customer expectations and opportunity. **Appendix 5** also gives a tool by Keen(1997) which helps to identify the actual process to be reengineered and avoid the process paradox. Business Need Readiness Matrix helps in deciding whether BPR or any other continuous improvement initiative is required**.(Diagram-8-f).** Calculation of Cost of Quality of Process, Milestone Planning, Champion review, Finalisation of Project team is signed off for better clarity on cost, time and resource involvements for a quantified benefit.

STEP-3 & 4: PROCESS APPRAISAL and CLEAN SLATE DESIGN (Refer- Diagram-8-b)

In this stage there is a 360 degree appraisal done for the process undertaken for reengineering to collect inputs from internal/external customers, suppliers, process owners and all stakeholders. This would give a clear picture of the process functionality. For fresh design of the process, no methodology has been suggested and teams can choose any suitable quality-tools. IT and Human Resources actionable are finalised and Finance is involved for cost impact analysis.

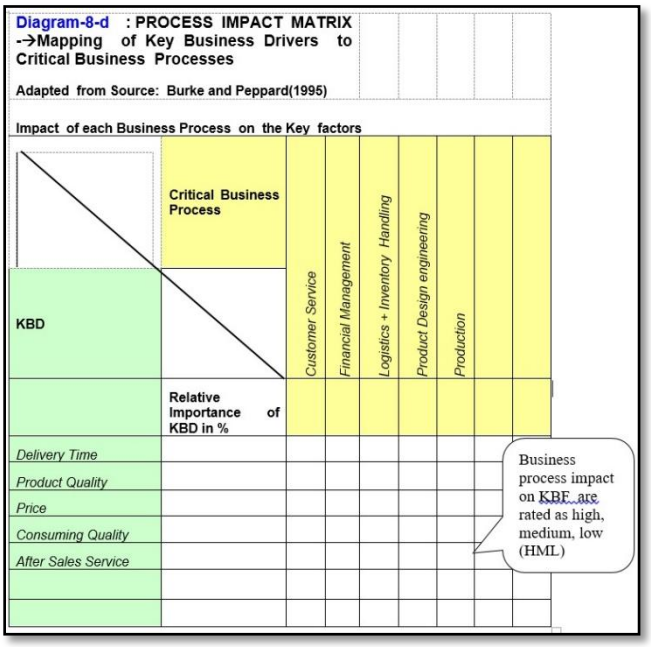


Diagram- 8-d: Process Impact Matrix

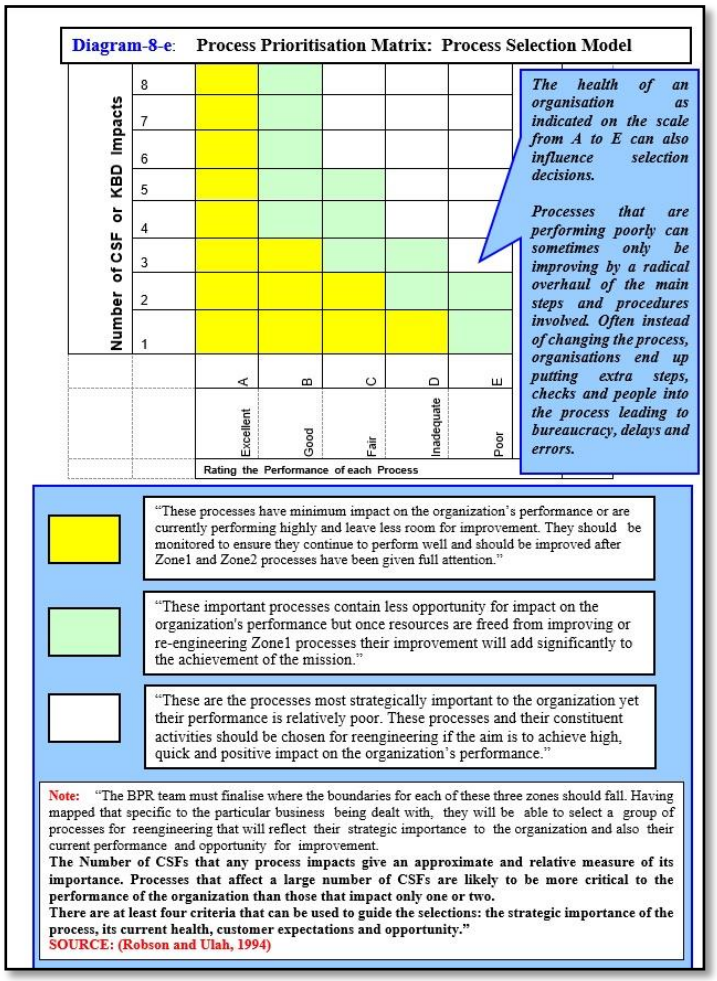
"This matrix maps the relation of the key business drivers of the business strategy with the main functional processes. It would show which Process has major impact on most of the key business drivers .

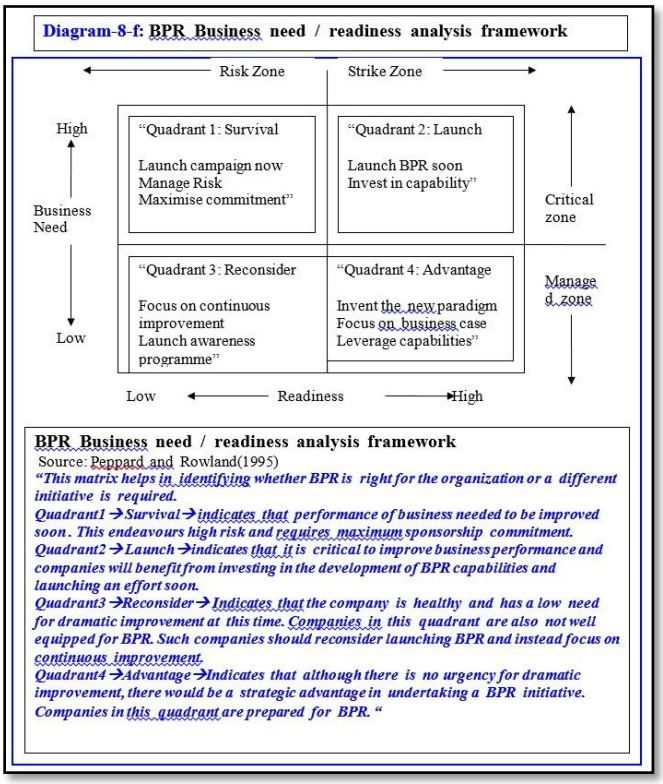
Alternatively this KBD can be replaced by CSF(Critical Success Factors identified to meet the business strategic/ goals)"

STEP-5 & 6 : PROCESS HEALTH CHECK and IMPLEMENTATION(Refer-Diagram-8-b)

This involves 'Performance Measurement Checking' for effects at upstream and downstream of the value chain , Pilot, Amendments, Roll out, Cost Benefit Analysis, Actionables on Behavioural issues, Recognitions and Sustenance action Plans. Improvements review during implementation needs focus.(**Appendix-4)**

Control **GATES 1,2,3** are incorporated to ensure that only when the previous steps are done and signed off the next stages can be taken up.**(Refer- Formats of Gates-sign-off in Appendix(1,2,3))**





6. CONCLUSION

As (Shin and Jemella, 2002) [48] mentions, businesses compete in 3 major ways: cost, value and competence. Processes are the backbone based on which the businesses can compete. It is important to reengineer processes based on situational dynamics.Dell transformed personal computer retailing by creating a process, rather than a product. ***Process Predators***use business processes to change the rules of competition.(Keen, 1997) [30]. BPR nurtures the courage to venture into the unknown with a tolerance for differences and uncertainties.

The objective of the research is to identify key drivers, critical success factors, failure factors, effects and issues of BPR thereby developing a framework for successful implementation. This research has been done with the triangulation technique with questionnaires, interviews and secondary research-case studies. This research has analysed the survey outputs and embarked upon the drivers of BPR, the critical success and failure factors along with the effects and resource allocations. It has also discussed the interdependencies amongst certain parameters including cost, flexibility, quality and time impacts. Hypotheses explored during primary research unravelled some key issues and recommendations have been provided for facilitating projects. Having studied certain methodologies used for BPR in the various secondary case studies, understanding the gaps and analysing them with relation to the influencing factors revealed in the primary research, the author has developed a 6 step framework for conducting BPR projects.

Some key conclusions drawn were as follows:

Cost benefit factors remains overlooked and is an area of concern even at this era.

Involvement of Finance and Human Resources is very critical

IT and automation is a very important aid for reengineering but standby alternatives must be worked out for time bound implementations wherever required

The ***Critical Success factors*** echoed are :-

- Top Management Commitment and Right Communications
- Alignment to Organisational Strategy
- Reengineering of the Right Process
- Behavioural Issues of the employees
- Voice of External and Internal Customers
- Interdependencies and impacts on ***Time, Cost , Quality and Flexibility*** while reengineering a process are important so that positive effects in one does not negatively effect the other.

The ***key drivers*** for BPR have been more of internal factors like profits, revenue, cost reductions while external factor is mainly customer satisfaction. Teams consisting of people of the ***right profile*** dedicating the appropriate time and effort with properly ***planned implementation steps*** would facilitate success. ***Downsizing*** is not a necessary effect of BPR projects.

In BPR, jobs change from simple tasks to multi dimensional; roles change from controlled to empowered; work units change from functional departments to process teams; measurement changes from activity to results; values change from protective to productive; managers change from supervisors to coaches, structures change from hierarchical to flat.(Crowe, Fong, Bauman and Zayas-Castro, 2002) [17].

7. FUTURE OF BPR

BPR projects produce uncertainties resulting from changes in the working environment, job duties and organizational structure. From the employees perspective this resistance is reinforced by the fear of exclusion in the

new system. From the management point of view it is heightened by the uncertainty in estimating the risk and return on the investment. If BPR is to become a distinct approach which can manage radical change then it must embrace this uncertainty, unpredictability and chaotic nature and develop ways of addressing it. If BPR is unable to develop as a unique response to the environmental pressures currently facing organizations, then it is likely to be overrun by other management disciplines and techniques until the next new idea comes along. "The rapid evolution of information technologies and its declining costs are creating opportunities for organizations to dramatically change the way to conduct business. Is the identification of an opportunity generated through technological advancement; sufficient to create vision and momentum required to initiate, enable and sustain reengineering? IT capabilities and contributions in initiation, design and cycle-time of automation implementation for successful reengineering need to be investigated." Future studies on how organizations need to evaluate their risks must be done. Also the right process architecture is important to avoid complex software designs and investments.(Ould, 2005) [42].'E-process management' best Practices and its linkage to BPR need to be further explored.(Kim and Ramkaran, 2004) [31]. (Seebacher, 2002) [51] points out that BPR must be flexible to suit and integrate processes optimally; in the present changing dimensions of cyber-commerce and e-business solutions while technology drives the micro and macroeconomic factors.

As (McHugh, Merli and Wheeler, 1995) [37] pointed out, increasingly " context" and relevance of a process with respect to customer and supplier would be important as stimulating creativity without context would simply make a business do wrong things better. "Successful actions require the ability to change the way things are done, the ability to achieve objectives, the ability to reorganize and integrate activities once the change has taken place and the ability to keep the new system operating until it is time for the next change. There is clearly a need for more research in this area."

However, this work has provided a better insight into identifying the key issues faced by BPR in the present business environment and in solving the challenge of implementation.

Appendices

Appendix – 1: Gate 1 Format

	GATE -1				
1	Process to be Redesigned				
2	Process Owner				
3	Measure of Success				
4	Validation for Project Selection				
	attached impact matrix	*validated*			
	attached need readiness matrix	*validated*			
5	Constraints				
	Cost				
	Time				
	Other				
6	QUANTIFICATION of Impact of This Project on Operations				
	Cost				
	Cycle time				
	Customer- Satisfaction				
7	COPQ for improper functioning for this process				
	Non Performance detail				
	Cost Implication				
8	Milestone Plan	Finalised	y/n		
9	Review Calendar	Finalised	y/n		
10	Incentive Scheme	Finalised	y/n		
	Sign Off				
	Champion				
	Finance Head				
	HR Head				
	IT Head				

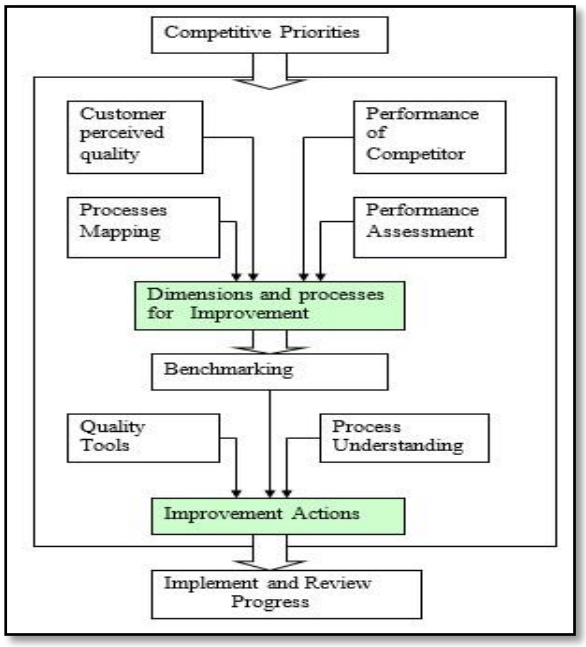
Appendix – 2: Gate 2 Format

	GATE -2						
1	Planned Impact on Business Balanced Score Card						
		Parameter	Measurement	Present Baseline	Target	Timeframe	Impact
	Financials						
	Customer						
	Learning						
	Internal Processes						
2	Cost Benefit						
	Present Design						
		Running Cost					
		Other Costs					
	New Design						
		Investments					
		Running Costs					
		Other Costs					
	Cost Savings						
	Quantification of Other Benefits						
3	Considerations of 360degree appraisal		(inputs considered , enclosed,) y/n				
			Inputs		considered in new process y/n		
	Customers of Process						
	Suppliers of Process						
	Other stakeholders of Process						
4	HR actions	finalised	Y/N				
5	IT actions	finalised	Y/N				
	Sign Off						
	Champion						
	Finance Head						
	HR Head						
	IT Head						

Appendix – 3: Gate 3 Format

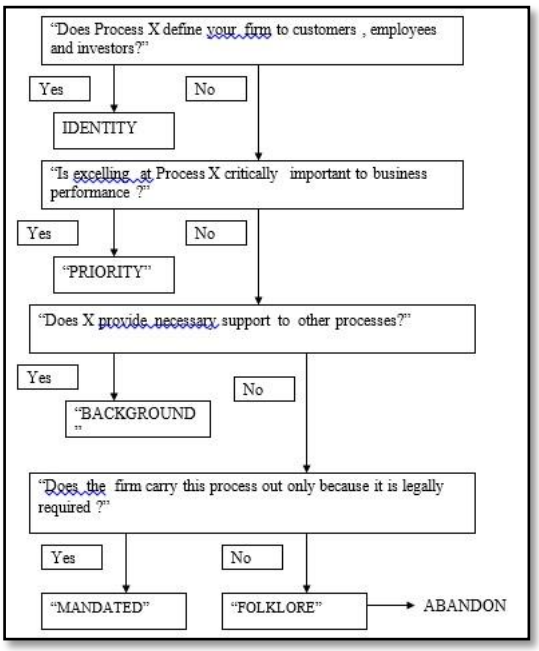
	GATE - 3		
1	Performance Metrics		
		Metrics	Target
	Tracked at Business Level		
	Tracked at Process Owner Level		
2	Cost Savings		
		Issue	Actions Taken
	Issues Faced in Pilot		
	Sign Off		
	Champion		
	Finance Head		
	HR Head		
	IT Head		

Appendix – 4: Review of Improvement Implemented



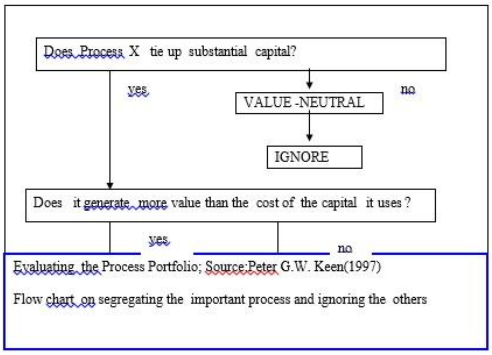
"The reasoning behind this approach is that improvement projects selected for implementation are those that contribute to the efficiency and effectiveness of business process mostly related to prioritised competitive criteria. Competitive dimensions are prioritised for improvement based on customer expectations and performance on such dimensions against competition. Priority processes for improvement are selected based on the impact of such processes on dimensions taken as improvement priorities. It also depends on qualitative and/or quantitative diagnostic of performance. Priority improvement actions are selected based on extent of their contribution to levering process performance."

Appendix – 5a: Process Portfolio-I (aid to select right process)



"This analytical process goes a long way toward helping managers get their bearings in the process swamp. It can be applied to any business process and the resulting classification immediately begins to suggest the kind of attention that the process is likely to require. When selection is based on a limited definition of what a process is or on the match between a process and the availability of familiar tools to improve it, the company runs the risk of investing in the wrong process. This creates the process paradox: of course measurable process improvement accompanied by measurable corporate decline."

Appendix – 5b: Process Portfolio II



Appendix – 6: Re-engineering Human Resource Barriers

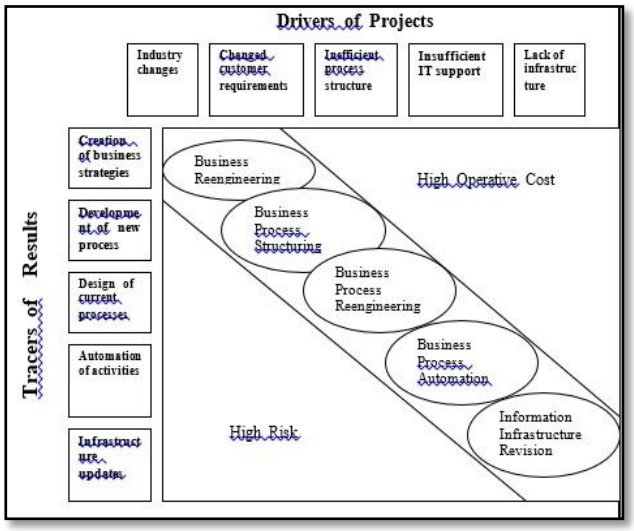
Re- engineering's human resource barriers					
	Inadequate leadership	Insufficient communication	Inappropriate structures	Inadequate new role preparation	Misaligned systems
Getting started	Y	Y			
Bringing the BPR teams together	Y			Y	Y
Preparing and moving forward	Y	Y		Y	Y
Coping with distractions	Y	Y		Y	Y
Fundamental change for managers and management	Y	Y	Y	Y	
Managing rewards		Y		Y	Y
Maintaining morale and momentum	Y	Y	Y	Y	
Managing the aftermath	Y	Y	Y	Y	Y
Universal lessons and postscripts	Y	Y	Y	Y	Y
Source : Mike Oram and Richard Wellins(1995)					

Appendix – 7: Comparison of certain improvement initiatives

Business Philosophy comparisons					
	Total Quality Management	Just in Time	Simultaneous Engineering	Time Compression	Business Process Reengineering
Focus	Quality	Raised inventory	Reduced time to market	Reduce time(cost)	Processes minimize non value added
	Attitude to customers	Raised throughput	Increased quality		
Improvement scale	Continuous Incremental	Continuous Incremental	Radical	Radical	Radical
Organization	Common goals across functions	Cells and team working	R&D and Production work as a single team	Process based	Process based
Customer focus	Internal and External satisfaction	Initiator of action ' pulls' production		Quick response	Outcomes driven
Process focus	Simplify, Improve. Measure to control	Workflow / Throughput efficiency		Eliminate time in all processes	Ideal or Streamlined
Techniques	Process Maps, Benchmarking, Self assessment, SPC,Diagrams	Visibility/ Kanban/ Small batches/ Quick setups		Process maps/ Benchmarking	Process maps, Benchmarking, Self assessment, IS/IT/ Creativity /out of box thinking
	Source: Peppard and Rowland (1995)				

Appendix – 8: Project Types with Drivers and Tracers

Driver of Project	Project Type	Tracer of change results
External changes uncontrollable to the industry such as tighter economic conditions, new legislation, deregulation of industries or advanced technology	**Business Reengineering**	Adoption of new business and operation strategies and corresponding process portfolio to offer new products and services through different channels to chosen customer, supplier segments
Changed or differentiated customer/ supplier requirements for current products or services observed as low satisfaction or high pace of losing customers or suppliers	**Business Process Structuring**	Several variants of a process for providing products or services to different market segments
Inadequate performance of process for example high cost, poor customer service or low quality due to inefficient composition of workflow	**Business Process reengineering**	Redesign of operations by obliterating redundant activities and changing workflows within a process
High ratio of manual activities and inappropriate technological support due to out of date IT/IS	**Business process automation**	Automation of current activities within a process by substituting manual work with information systems.
Outdated technical or social capabilities that do not support current business requirements and restrain initiation of development activities	**Information infrastructure revisions**	Infrastructure and business strategy alignment that is not initiated for its own sake but to support current business and to facilitate future projects by creating required technical and social capabilities.



"There is a need to find distinguishing criteria between different types of change initiatives, that facilitate the identification of right responses for a given solution. On understanding the type of change project, the right objectives can be set. The drivers behind changes are often diverse, ranging from changes in the economics of the industry(e.g deregulation) and competitive situation to needs to streamline and automate business processes within the firm. The recognition of the drivers assists in the assessment of the results and tracers of the projects. Efficient project types are located along the diagonal. Economic transactions should be arranged so as to minimse the sum of production costs(due to internal operations) and transaction costs(caused by the establishment and maintenance of external customer relationships and the related coordination activities.) Projects close to the diagonal are more efficient than those far from it. The diagonal matches the best projects by combining drivers and tracers of projects. The non-diagonal corner areas of the matrix are inefficient and often void of projects."

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