ABSTRACT

This research paper discusses the applicability of the concept of Business process Re-engineering in the educational sector. It makes an attempt to introduce innovation, and creativity by using Information technology. This usage will not only bring about refinement in the processes but also increase bottom line. Institutes or the educational sector as a whole can thus address the issue of sustainability, ecologically as well as economically. The paper makes an attempt to address issues such as underutilization of resources, processes bottle necks and ultimately unsatisfied customers.

Keywords: Business Process Reengineering, Educational sector, innovation, sustainability

1. INTRODUCTION

1.1 Introduction

The quest to improve teaching and learning is supported by information and communication technologies. These include new methods of finding and processing information without restriction of time and place. Many office work "innovations", such as shared stenography and typing tools, have come and gone. IT has certainly penetrated the office and services environments — IT has been used in most cases to hasten work rather than to transform it. With few exceptions, IT’s role in the redesign of nonmanufacturing work, such as processes in an educational institute has been disappointing; few firms have achieved major productivity gains. This research paper will introduce the concept of increasing the bottom line and enhancing the quality of processes in an educational institute. It broadly gives a view of the need of integrating BPR and IT. Today there are many educational institutes with a large number of courses offered. However the last 2 years have shown a drastic drop in the number of seats that have been filled. Since the vacancies are large, the institutions need to address the need of increasing bottom lines without increasing the number of seats. Another method of increasing the profit margins or bottom line is to cut down on costs and refine internal processes, to generate better profits and revenue. The basic need does not only consist of income generation, but also fine tuning processes that take place in the educational institute. Given the growing dominance of service industries and administrative functions in the Western economies, this type of work is as much in need of analysis and redesign as is the case of manufacturing environments to which IT has already been applied. To accomplish this, many firms have found that a broader view of both IT and business activity, and of the relationships between them, is now necessary. IT should be viewed as more than an automating or mechanizing force; it can fundamentally reshape the way business is done. In short, business should be viewed as more than a collection of individual or even functional tasks; instead it should be broken into processes that can be designed for maximum effectiveness, in both manufacturing and service environments.

1.2 Statement of the Problem

With the increasing demand for better revenue generation, educational institutes need to find better performing processes both direct and indirect. With higher education seats not getting filled completely to rising costs, institutes today need to devise new methods of income generation. This needs to be done with the existing framework of available infrastructure. This however needs to be facilitated with the help of IT not just as a tool but as a BPR partner. This paper thoroughly discusses the methodologies and implementation of such a system and broadened, recursive view of IT and BPR in educational engineering perspective.

1.3 System and solutions

Relating to the above need and requirement of any educational institute possible solutions can be thought of. The solution for these issues is strategic investment in integrating IT and BPR that can boost efficiency, save money and make IT an integral part of a institutes’ or university’s processes and objectives. These refinements in educational processes, all administrative, student centric and teaching-learning processes can help facilitate greater collaboration.
and learning, thus increasing revenue. However they require more attention from administrators than traditional architecture. This is where creativity and sustainability come into picture.

1.4 Literature review
According to Michael Hammer and Champy, Business process reengineering is the analysis and redesign of workflows within and between enterprises as mentioned in their bestselling book, “Reengineering the Corporation”. According to the authors, information technology was the key enabler to bring the radical change that was required for the redesign and reorganization of the enterprise for lowering the cost and improving the efficiency and quality of service. To streamline the processes of work and to achieve a significant level of improvement in the performance and quality, time management and cost, the there are some guiding principles:
1. Organize the activities around outcomes and not tasks.
2. Prioritizing the processes in order of their redesigned urgency after its proper identification.
3. The real work to be integrated well with the information processing work.
4. Dispersed resources should be centralized.
5. Linking the parallel activities in the workflow.
6. Taking prompt decisions and building a control system.
7. Capture information once and at the source

2. NEED OF INTEGRATION OF IT AND BPR
2.1 Objective of the study
Underlying the problem as stated above it is important to address and solve the need of integrating these two, BPR and IT and the recursive relationship between these both.

Interrelationship between IT and BPR

Unlike last century, educational institutes today face new competitive threats and uncertainties on a global scale. Educational institutes face mounting pressures to improve strategic and operational performance in process innovation both administrative and teaching-learning, better product delivery as students, and customer service and management. In these areas institutes strive to reduce cost and time to market, while simultaneously improving quality, service and risk management. Individual tasks and jobs change faster than they can be redesigned. Responsibility for an outcome is spread over a group, rather than assigned to the single individual as in the past. Today, educational institutes increasingly find it necessary to develop more flexible, team oriented, coordinative and communication-based work capability. All this needs to be done without using the simplest tool for revenue generation i.e. increasing student intake.

For institutes to achieve impressive improvements in productivity, process time and quality, business process redesign is applied to radically redesign the core business processes which will lead to desired results. Here, they think from the scratch of the processes which can deliver more value to its customers both internal and external. Here, customer needs are taken care of by emphasizing on adopting a new value system. For putting business process redesign, institutes have to eliminate layers of hierarchy and unproductive activities. The first step of the educational institute should be to form
cross functional teams and next step should be to improve data dissemination and improved decision making by using technology. (Business Process Reengineering)

This study is mainly carried out so that we can identify the current problems of the management or administrative style and design a reengineering solution for the educational institute which can be adopted as a model by the other institutes as well.

**What Are Business Processes In an Educational Institute?**

We define business processes as a set of logically-related tasks performed to achieve a defined outcome. This is similar to Pall's definition of process as "the logical organization of people, materials, energy, equipment, and procedures into work activities designed to produce a specified end result (work product)." A set of processes form a business system — the way in which an educational unit, carries out its business.

Processes have two important characteristics:

1. They have customers; that is, processes have defined business outcomes, and there are recipients of the outcomes. Customers may be either internal or external to the institute. In the case of an educational institute customers are students, parents, university and other entities that may interact with the institute etc.
2. They cross organizational boundaries; that is, normally they occur across or between institutional sub units. Processes are generally independent of formal organizational structure. The importance of undertaking BPR initiatives in the education sector is to reduce costs and improve services. The three basic reasons for educational institutes to adopt BPR initiatives are- to face the challenges of the environment thereby responding to the demands of the customers, to achieve efficiency, flexibility, and to have an understanding of all variables that directly affect organizational or individual performance.

Common examples of processes meeting these criteria include:

- Issuance of various certificates like bonafide certificate, character certificate, fee structure for educational loan purpose
- It also includes processes like admission, admission cancelation, clearance processes etc.
- IT-driven process

Redesign may also be desirable for these more detailed processes, though the implications of redesigning these detailed processes may be important only in the aggregate. In many of the Institutions, analyzing processes in great detail was highly appropriate for some purposes, e.g., the detailed design of an information system or data model to support a specific work process like issuing transcripts. However, in the institutes that were truly beginning to redesign the way their business processes function, a broader view of processes was taken.

**2.1 Management Roles**

Perhaps the greatest difficulty encountered by firms in bringing about IT-driven redesign is obtaining and keeping management commitment to the changes any redesign will bring. Because processes themselves cut across various parts of the organization, a process redesign effort driven by a single business function or unit will probably encounter resistance from other affected parts of the organization. Both high-level and broad support for change is necessary. This change management and steps to address it effectively is the essence of managing BPR at the institution level.

To perform the redesign steps, several educational institutes created a crossfunctional task force headed by a senior executive. These task forces included representation from key staff and line groups likely to be affected by the changes, including the IT and Human Resources functions. It personnel are not the only ones that have key importance. Members with functional knowledge of processes flows are equally important. It was particularly important that the customer of the process be represented on the team, even when the customer is external. The team composition was ideal when some members of the group had some record of process or operations innovation involving IT. As the redesign teams selected processes for redesign and developed redesign objectives, they needed to work closely with the managers and staff of the affected units. Of course, getting process changes implemented is usually more difficult than determining what changes should be made. Ideally, managing process change is similar to other types of change management, except that the cross-functional nature of process redesign increases the number of stakeholders, thereby increasing the complexity of the effort.

**2.2 Methodology**

To gain insights into the experience and understand the dynamics of BPR implementation in an institution, a qualitative research approach using a case study has been employed. Yin (2003) supports the use of this methodology; in that “it allows investigators to retain the holistic and meaningful characteristics of real life events such as … organizational and managerial processes and the imperative to state that all objectives, once selected, should be given equal importance, since exclusive focus on any single objective of an organization defeats the very purpose of implementing BPR.

The authorities of the institution, who agreed to allow to undertake an in-depth analysis of the BPR initiative, have requested anonymity. Hence this institution is referred to as ABC College in the study. Semi-structured interviews were conducted with the CEO and key managers of ABC College over a 12-month period during the 5th year of the BPR programme. The topics covered in the interviews related to the entire process of BPR: dimensions covered, benefits, relation to the strategic objectives, use of other change methods used in conjunction, role of information technology, timeliness, impact of the process and the degree of change involved. These interviews were recorded and transcribed.
Data analysis of the interviews led to identifying major issues and themes in the implementation of BPR. The issues are discussed and categorized in terms of the nature of their impact, positive or negative, on the institute.

3. CASE ANALYSIS AND DISCUSSION

3.1 Institute profile

ABC college provides high quality educational programmes to students who wish to gain higher education. The services provided include teaching and research. Initially the student population consisted of a certain number of students only, but the ABC College has positioned itself for growth opportunities by attracting more number of students from the second year onwards. The BPR project was initiated because it was felt necessary to change the existing processes in order to match the growing demand for the products / services offered by ABC College.

The expected steep growth in students’ numbers and the associated workload, forced them into looking at their existing processes. They wanted to not only remove any overlaps or duplication of efforts but also manage growth efficiently. Therefore, the complexity of systems and processes involved in offering different programmes and the expected increase in student’s numbers were the main reasons for initiating BPR efforts. The driving factors of the project were clearly: to improve communication internally between the departments and the different campuses and externally with the suppliers and customers; to better use human resources; and to reduce processing time in delivering services to students. It must be emphasized that the main focus of BPR efforts was in the area of student administration, and this is limited in its application to academic programmes.

3.2 Reasons for BPR initiative

The project of reengineering began due to the felt need to change the processes to suit the high demand for the product and services offered by the ABC College. The voluminous workload pushed them into looking at the processes to enable them to manage and sustain growth. Therefore, increased complexity of systems and processes due to business growth (see table 1) was the prime reason for reengineering. The driving factors of the project were clearly to improve communication internally between the departments and the different campuses and externally with the suppliers and customers, better use of human resources and process time reduction.

The project covered all departments of the organization, namely - human resources, marketing, business development, registry- sales, accounts, academic department and across the campuses (branches) and head office. The processes in the entire organization were taken into consideration for reengineering. The team believed that BPR processes should be studied and reengineered throughout the organization since all the departments are interlinked and are customers to each other. Furthermore, the changes made in one department would have an impact on the other departments. The processes from handling student enquiries to student graduation were studied. The back office functions also were taken into consideration. Therefore the reengineering project included the entire organization for the reason that they had to be in line with the other departments.

3.3 Scope and Timeframe

The project consisted of two phases, though they overlap in Year 4. The first phase was planned, structured and termed ‘intensive implementation’. The second phase is broadly based on the first phase but makes minor changes based on the results from the implementation of BPR. This phase is more of an ‘intermittent implementation’. The first phase was launched in Year 2 and covered up to Year 3. The second phase started from Year 3 and was continuing at the time of the interviews in Year 4. The idea is to constantly review the industry and make the required changes to the organization after the second phase.

4. IMPLEMENTATION STRATEGY

4.1 Tools used for BPR

To improve performance, evaluations and assessments were put in place. Internal and peer evaluation were conducted regularly to understand any gaps in the delivery of customer services and to recognise any shortcomings. Some employees were provided with appropriate training to fit them into the newly created positions that resulted due to the current project. While analysing their processes, one of the major problems identified was the duplication of processes and work. The solutions included improving communication to avoid overlapping jobs within the departments for which an IT system was installed. This was named as the inward-outward system. All communication or documents that were supposed to be sent to specific personnel, were send via this system. Paper wastage was reduced as well as confidentiality was also maintained.

Restructuring of the website was also initiated. External customers were now able to access information via the internet, which further reduced reduced the time put in answering queries to gain information, that was now available on the website.

Further, the computerisation process was performed in three stages of development. The computerisation involved connecting the departments and the departments to facilitate a smoother line of communication between them. This also reduced the duplication and time taken to deliver services. New software was installed to link the customer relations and administrative divisions. A new programme for managing finance was also installed after problems were identified at the end of the first phase. At each stage, the project team felt a need to either revamp or repeat, or add new
servers and hardware and software, since they were growing at a fast pace. Many times, they had to pause and repeat a process to examine its effectiveness before allowing it to be part of the new administrative process. A database management system was implemented due to the growth in business. Because of unsuccessful attempts at developing a system in the past, they chose to incorporate a tailor-made system from the market, which would better suit their requirements. This resulted in a better control system for the organization as a whole.

4.2 Impact of the Project
According to management, the overall cost of the BPR project was quite high, but they were already seeing increased sales revenue due to higher student enrolments, and were also starting to recover costs from Year 4 of the project implementation. The cycle time was reduced since the duplicated processes were deleted during the re-engineered project, thereby reducing operational costs also. The cost and time reduction achieved in this case further supports the views presented by Davenport (1993) and Caron, Jarvenpa and Stoddard (1994). The unique combination of the step-by-step change approach of the entire organisation and radical change approach within the identified areas (chunks) ensured the smooth running of the business and the success of the planned process re-engineering project.

A Database Management system that had been implemented aided to the growth in business. Due to this accuracy, consistency and integrity of data was maintained. The results seemed more robust. Internal and external customer satisfaction levels rose to good levels. This resulted in a better control system.

4.2.1 Phase one of the project
Some of the processes improved during the project were standardising enrolment and dealing with enquiries. This resulted in improved customer (both internal and external) satisfaction. Control processes such as regular evaluation and assessments as well as quality assurance systems were revisited to ensure the integrity of the new processes. Communication had improved between departments and with customers and suppliers. Streamlined processes were computerised to increase efficiency. The main areas of automation linked customer services and accounts. This new system enabled management to receive some critical financial, marketing and customer related reports and data on a regular basis. As the re-engineering progressed, some activities were combined and new departments emerged; this resulted in a different organisational structure with activities and processes that were more focused and aligned within respective department. This ensured that there was no duplication of any process, leading to an organisation that was efficient and effective. The new organisational structure that emerged was based on strategic decisions to create more focused and efficient departments and replaced the old functional structure during the course of the project. This provided a more defined skeleton for the organisation, and it aims to manage new processes as the ABC College embarks on future growth.

Some redundancies arose due to the changes made; however, new staff were employed in other areas where the jobs had been created. These also necessitated training programmes for the existing staff. This new structure facilitates improved efficiency, reduced cycle time and increased control of the operations of the educational institute.

4.2.2 Phase two of the project
The second phase of reengineering has been recognised as a continual process, without any specific time period. Even though phase one has brought about major changes in the organisational structure and strategies, it is felt that some sort of intervention is necessary on a regular basis, although in a less intensive manner. There would still be some people who may not have fully bought into the new system, some implementation procedures that need clarification from the management etc.

Further, the level of competition has increased over the period. To protect and build on the goals, the management has decided to constantly monitor the changes in the environment and plan strategically. By the time we completed the study, we found that ABC College was facing some challenging market conditions. That specific education sector saw a dip in admission and the vacancy increased.

By re-engineering the organisational processes and becoming more efficient, the organisation has been able to withstand the pressures of the industry. It is not unreasonable to surmise that BPR efforts have cushioned the adverse conditions.

Table 1: Summary of the impact of the BPR initiatives at ABC College

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<th>Positive Impact</th>
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<tr>
<td>- Customer satisfaction was highly improved</td>
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<tr>
<td>- Standardisation of enrolment and enquiries procedures</td>
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<tr>
<td>- Reduction in cost of operation</td>
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<td>- Improved lead time</td>
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<td>- Greater efficiency</td>
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<td>- Greater control of the operations</td>
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<tr>
<td>- Greater flexibility</td>
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<tr>
<td>- Ability to overcome and maintain profitability during industry downturn in Year 6</td>
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<th>Negative Impact</th>
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5. CONCLUSION AND IMPLICATIONS

Like any other business, tertiary educational institutions too need to transform their organisation in order to successfully face challenges in a competitive environment. This requires careful planning and implementation of appropriate change management initiatives. An examination of BPR implementation in ABC College reveals that it can be a powerful tool to bring in necessary organisational changes to provide a competitive edge. This organisation has clearly gained benefits through a redesigned organizational structure, greater control of operations, improved flexibility to adapt to fluctuating numbers of student enrolments and increased profitability.

The study emphasises the importance of the systematic selection of processes to be re-engineered, even before the process is begun. Unlike many BPR initiatives, this study showed that dependence on an external agent is not like dependence on internal staff to drive the BPR efforts resulted in a higher level of organizational commitment in managing the process, which played a critical role in its success.

It also highlights the vision and leadership displayed by the management towards this project, and its ability to involve all the departments in the BPR efforts right from the beginning. Necessity for successful implementation; it can be undertaken even with internal staff if they have the required expertise and understanding of the project. The use of Implementation of BPR in ABC College reveals that BPR efforts can yield better results if they are complemented by supporting tools such as benchmarking, and human resources training. This involves the use of strategies of change management. While information technology is recognised as an important factor in the success of this project, prior planning and understanding of the processes led to successful integration with the project goals. The study indicates that BPR is a tool that is available for any level educational institution in its artillery to improve its efficiency and performance. Educational institutions desirous of implementing BPR can learn much from the experience of ABC College. However, it must be emphasised that BPR efforts or other efficiency tools can be effective only when the product offering, its content and delivery are of high standard and are relevant to the industry and the economy.

Another major factor that cannot be overlooked is that even though certain processes were automated, it did not result in downsizing of employees. It accommodated these extra resources in areas where they were needed. Thus unemployment issues did not arise. The human resource factors if well managed can turn resistances into resources.

Thus the culmination of Information Technology and Business Process Reengineering, will give benefits not only for the business bottom line, but give it a new measure of sustainability.

BIBLIOGRAPHY