Reengineering an Educational Institute: a Case Study in New Zealand

by

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Abstract
With the education industry becoming more competitive, tertiary institutes resort to various tools and techniques to improve their performance. This paper examines the use of business process reengineering (BPR) in a tertiary education institute in New Zealand. The results of this research shed light on the challenges of implementation of BPR in a medium sized educational institute to improve performance and position itself for international competition. The findings of this study have implications for other tertiary education institutes that plan to undertake similar efforts.

Introduction

Tertiary education contributes significantly to a nation's future by enhancing the learning and ability of young adults. The importance of higher education in enhancing economic growth has been well established (Chatterji, 1998; Thanki, 1999). Scott (2003) contends that tertiary education provides knowledge, skill and ability; thereby equipping employees with tools to work in the industry and business; it is central to gaining competitive advantage in the global market place. Therefore every nation wanting to reap economic success should invest in education (Salmi, 2002). Trends such as globalisation of the education industry and boundryless markets have become more popular and the tertiary sector in New Zealand has adapted to respond to the need of the global market.

In the above scenario, New Zealand finds itself in competition with other host countries such as the UK, the USA, Canada and Australia seeking a larger market share of international students. A survey conducted by the Centre for International Economics, an Australian company, identified New Zealand to be the most favourable country for export education since it had a competitive advantage in terms of overall costs of studying and living in New Zealand (NZVCC, 2002). However, to compete efficiently it necessitates that all tertiary education be relevant to the economy and industry requirements. These institutes have to review processes to work effectively and efficiently by reducing costs and identifying core competencies. With a high level of competition, and competencies being imitated by other organisations, institutes can no longer rely on what they consider their strengths. The need to reorganize becomes evident.

Education institutes function similar to any other business organisations and therefore the tools used by most business organisations can be implemented by them too. Several improvement tools and techniques such as change management, total quality management, downsizing, restructuring, benchmarking, design and systems development and process mapping have been adopted by businesses in various industries to sustain growth and to achieve gains in service and costs (Mangenelli and Klein, 1994; Jacka and Keller, 2002). The educational institutes, in pursuit of improved performance and quality can use any or all of the above-mentioned tools to overcome inefficiencies (Fisher, 2001; Davis and Metha, 1997; Adenso-Díaz and Canteli, 2001). Recognising the importance of quality and efficiency in all aspects of the education institutes, 'Malcolm Baldrige awards', given for improvements in quality, has been extended to the educational institutes also from the year 1999.

This research focuses on the impact of using Business Process Reengineering (BPR) as a tool for improving efficiency and performance in an educational institute. It describes and analyses the BPR efforts made by a tertiary education provider in New Zealand in its pursuit to improve its performance. The need for constant efforts to improve performance in an intensely competitive market and the lack of prescriptive studies that describe BPR initiatives by educational institutes in New Zealand have driven this study.

This paper has five sections. The first section is the introduction. Section two discusses existing literature on BPR and the main aspects of the process are identified. Section three deals with the method used in the study and discusses why case study methodology

is used for this research. In the fourth section, the case is described and analysed. The last section discusses the conclusions of the study and recommendations for further research.

What is Business Process Reengineering?

"Business process reengineering"- a term originally coined by Hammer and Champy (1993), refers to achieving a radical breakthrough in performance by breaking away from ineffective business practices and redesigning processes. Porter (1985) proposes that every organisation's competitive advantage lies in its value chain. An analysis of the value chain shows the primary and support activities and the functional areas of strengths and weaknesses. The value-chain directs businesses to understand the value-adding processes and activities an organisation engages in. The essence of BPR is to identify those processes that add value, and eliminate unnecessary or non-value adding processes. To be successful in the BPR attempt, Davenport and Short (1990) suggest that companies identify processes carefully in line with the redesign objectives and the resources available with the organisation to implement the same.

Many companies in various industries (aeronautics, banking, textiles, automobiles, service etc.) claimed business process reengineering to be a panacea for organisational illnesses and to achieve lower costs, productivity, and improved performance. CIGNA, Taranaki Healthcare, BELL and Mobil Oil Australia Limited are some examples of successful BPR efforts.

Reengineering may be required for various reasons. Customers, competition, change, financial risks, global business trends, economic trends, operational challenges, past management failures have been among those factors recognised as drivers of the BPR projects (Hammer and Champy, 1993;Andrew and Stalick, 1994; Caron, Jarvenpa and Stoddard, 1994; Berman, 1994 and Talwar, 1993).

Table 1: Drivers/Reasons for BPR Efforts Undertaken by Businesses

Drivers/Reasons	Studies undertaken by
Customers	Hammer and Champy, 1993; Adair and Murray, 1994; Andrew and Stalick, 1994; Sethi and King, 1998.
Competition	Hammer and Champy, 1993; Gunge, 2000
Change	Hammer and Champy, 1993;Andrew and Stalick, 1994;
Financial risks	Caron, Jarvenpa and Stoddard, 1994; Berman, 1994
Global business trends, economic trends, operational challenges, learning as a competitive weapon and past management failures	Talwar, 1993.
Cost reduction, time reduction, output quality, quality of work life/ learning/ empowerment	Davenport, 1993

BPR has taken different forms and various factors were found to be critical for the success of the initiative: Visible leadership (Homa, 1995; Champy, 1995), integration of appropriate IT tools to the programme (Homa, 1995; Davenport and Stoddard, 1994; Talwar, 1993), excellent reengineering teams (Homa, 1995; Coulson-Thomas, 1997; Hammer and Champy, 1993; Mangenelli and Klein, 1994) and the ownership of reengineered processes (Homa, 1995).

Nevertheless there are risks involved. BPR efforts were reported to have failed in 50% to 70% of the cases (Bashein, Markus and Riley, 1994; Champy, 1995). On examining the reasons attributing to such failures, Mayer and DeWitte (1999) have observed that BPR could achieve results if a realistic approach was taken and planning and implementation was carefully carried out. Closely following the cases of failures, Wu (2001) identified BPR to have been applied at an operational or tactical level rather than strategic level. Al Mashari, Irani and Zairi (2001) observe that the actual potential of reengineering has not been utilized in these cases. However, Johnson and Stergiou (1998) emphasize that BPR is not prescriptive in that it only offers guidelines, heuristics, and some tools to reengineer the business processes.

Gerybadze (1995) illustrates the importance of finding a correlation between the strategic objectives and resources for planning processes to produce efficient and effective results. This implies that organisations should plan processes carefully based on the objectives and should use a strategic approach. It is imperative to state that all objectives, once selected, should be given equal importance since focusing on any one of the objective defeats the very purpose of implementing BPR.

BPR in the education sector

Several authors (Benjamin, 1998; Davis and Mehta, 1997; Gales, 1994) highlight the importance of undertaking BPR initiatives in the education sector to reduce costs and improve services. Walker and Black (2000) have identified three reasons for business schools to adopt BPR initiatives – to face the challenges of the industry thereby responding to the demands of the customers, to achieve efficiency, flexibility, and to have an understanding of all variables that directly affect organisational or individual performance. Another qualitative study undertaken in the further education sector in Northern Ireland (McAdam and Bickerstaff, 2001) revealed similar results were the emphasis was based on the customer's needs, designing and improving key business processes and identifying critical success factors. A review of literature did not reveal any study covering BPR initiatives in tertiary institutions in New Zealand. The lack of such research in New Zealand has driven this study.

Method

To gain an in-depth insight of the experience and understand the dynamics of process reengineering and its implementation in a tertiary institute, 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… organisational and managerial processes… and the maturation of industries" (p.2). Case study method lends itself to be able to identify the circumstance of implementing BPR and to study the impact in a given organisation because 'reasons and meanings can be probed' (Yin, 2003).

Using informal contacts with academic colleagues, the author was able to identify a medium-sized private tertiary education provider, which has implemented BPR to improve its performance. It also satisfies the criteria of purposive method suggested by Sekaran (1992) as the said institute has implemented BPR recently. The authorities of the institute, who agreed to allow the author to undertake in-depth analysis of the BPR initiative, have requested anonymity. Hence this institute has been referred to as ' ABC College' in the study. The case used in this study is different from the institute the author is representing.

Semi-structured interviews were conducted of a key member of the ABC College. The key person involved in the process was re-interviewed. These interviews were conducted over a 12-month period. 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 method used in conjunction, role of IT, timelines, impact of the process and the degree of change involved. These interviews were recorded and transcribed. Data analysis led to identifying major issues, which emerged from the interviews. The issues have been discussed and categorized to focus on its impact both positive and negative on the organization.

Discusssion of Case

Company profile

ABC College provides high quality educational programmes to students from New Zealand and around the world. The services provided by them include teaching, consultancy and research. The courses and qualifications are registered with New Zealand Qualifications Authorities (NZQA) and the Ministry of Education (MOE). ABC College was awarded ISO 9002 accreditation in 1999, thereafter awarded re-accreditation to the new ISO 9002:2002 standard.

With a turnover of around $ 10 million, the organisation had doubled in size during the year 2001- 2002. This has been attributed to growing demand for education in New Zealand and among the overseas students, who have become its main customers in recent years. The organisation has three campuses where it runs its educational programmes and a head office for all administrative purposes. 30 different qualifications (Certificate courses, Diplomas, Advanced Diplomas) are being offered.

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 2) 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.

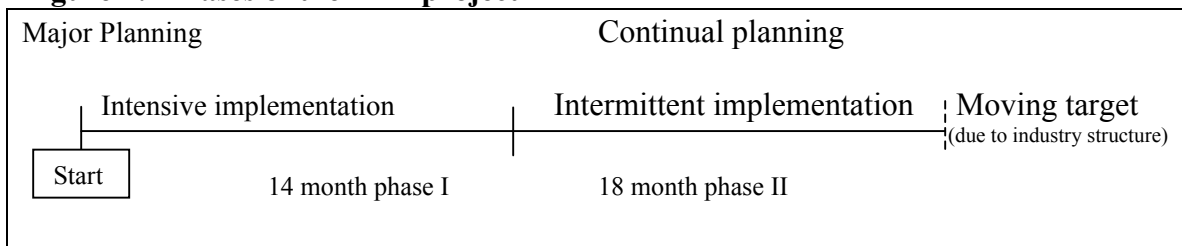**Table 2: Number of students enrolled in the years 1998-2002**

Year	1998	1999	2000	2001	2002
Domestic (%)	100	94.28	88.89	58.34	45
International (%)	0	5.72	11.11	41.66	55
Total: number of students	200	260	380	500	900

Source: Interview with the respondent, November, 2002

Scope and Timeframe

The project consisted of two phases. The first phase was planned and structured and the second phase was the outcome of the results of the first phase. The project was launched at the end of 2001 and the first phase of implementation was undertaken over a period of fourteen months. The second phase is under implementation and expected to be completed sometime in the year 2004. The idea is to constantly review the industry and make required changes to the organisation after the second phase (see figure 1).

Figure 1: Phases of the BPR project

Major Planning	Continual planning
Intensive implementation	Intermittent implementation ⁞ Moving target
	⁞(due to industry structure)
Start	14 month phase I	18 month phase II

Source: Interview with the respondent, September, 2003

The project covered all departments of the organisation, namely - human resources, marketing, business development, registry- sales, accounts, academic department and across the three campuses (branches) and head office. The processes in the entire organisation were taken into consideration for reengineering. The team believed that BPR processes should be studied and reengineered throughout the organisation 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 organisation for the reason that they had to be in line with the other departments.

Team involved

The team involved in the process reengineering comprised of 15 managers within the company. There was no involvement of any external consultant in the BPR effort. This team of managers decided the extent of the effort. They were from various departments since the reengineering project involved all processes. As mentioned above, any changes made in one process would have an impact on other processes; it was therefore important for them to involve managers from all departments. These managers described the functions of their department and helped in developing flowcharts of existing processes. They then assisted in studying the non-value activities to reduce duplication. Finally the processes were reengineered based on the objectives and interdepartmental requirements.

Project Design

The firm's value chain analysis identified areas they could improve upon to achieve lower costs and increase productivity. The planning was strategic and also involved all the operational aspects of the business. Areas to be reengineered were identified (figure 2).

Figure 2: Four Main Areas Identified for Reengineering at ABC College
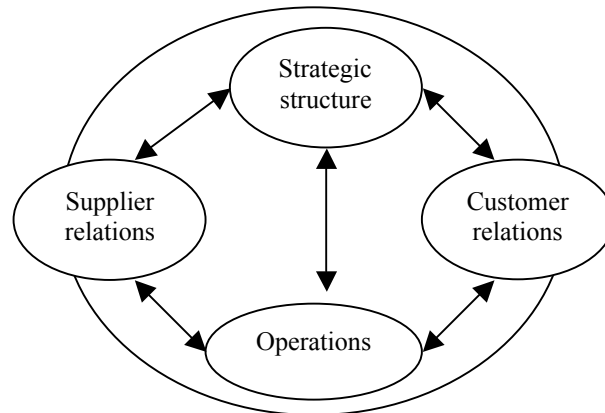
Source: Interview with the respondent, September 2003

The four areas identified – Strategic structure, customer relations, operations and supplier relations were earmarked as major areas requiring reengineering. These areas were classified into 'chunks', which were inter-departmental. Traditionally changes were made in each department separately. This caused a series of non-coherent processes managing the business, resulting in inefficient, time consuming and expensive outcomes. All functions and processes in each area were drawn on a chart to study. Each chunk was reengineered separately since they were all linked with one another, therefore making it crucial to plan changes and implement them systematically because changes made in one department would affect the other. Care was taken to maintain the links between the processes and thereby the departments.

In many instances, it was recognised that there were time delays in providing the services, as the processes were duplicated. The ultimate goal was redefined and all processes, which were critical, were mapped. The non-value adding processes were removed and processes were redesigned, keeping in mind the overall objectives. All departments were involved in the study but the implementation was carried out in small steps, since uprooting all processes would cause problems in managing the change. As mentioned earlier, the strategy was to implement change in all departments using a step-by-step approach.

During the planning phase it was deemed that human resources planning should also be done simultaneously, since the organisation did not have the current profiles of the employees on their database causing problems in recruitment and training as well as in

other human resource activities. For this purpose the organisation employed services of a human resource consultant to analyse all the jobs and to create profiles alongside.

The project was not called BPR publicly, due to fear that employees might get nervous and associate it with redundancy or downsizing. An observation made by the interviewee was that the managers accustomed to a more familiar style of management were very conservative and found it difficult to cope with the changes while the new managers were more ready to critique the processes and appreciated the analysis.

One senior manager commented:
> it was probably the managers who'd been with the institution a long time and therefore used to doing things in a particular way who displayed resistance to change processes.

However, appropriate training was given to several employees to fit them into the newly created positions.

As the reengineering progressed, new departments emerged and a totally new structure was formed with processes carefully aligned with respective departments so that there was efficiency and effectiveness, eliminating duplication of any process.

Supporting Tools and Techniques

Many studies have underscored the importance of integrating supporting tools such as benchmarking, total quality management, human resources training and information technology along with BPR (Zairi and Sinclair, 1995; Gerybadze, 1995; Johannson, Mchugh, Pendlebury and Wheeler, 1993). This study reveals that ABC College has indeed used other change management tools along with the BPR initiative.

The organisation used *benchmarking* to gather intelligence about their competitors and to examine the processes. If they found any feature or facility offered by their competitors to be better than theirs, they used it to understand their own systems and analyse their processes.

To improve performance, evaluations and assessments were put in place. Internal and peer evaluation have now been conducted regularly to understand any gaps in the delivery of customer service and thereby to recognise any shortcomings. People were *trained* to fill new positions after the restructuring that resulted due to reengineering.

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. Restructuring of the Web site was also initiated.

The *Computerisation* process was performed in three stages of development. The computerisation involved connecting the departments and the three campuses, to facilitate a smoother line of communication between them. This also has reduced the duplication and time taken to deliver the services. New software was installed to link the

customer relations and operations divisions. A new program for managing finance was also installed after problems were identified at the end of the first phase. At each stage, they felt a need to either revamp, or repeat or add new servers and hardware and software, since they were growing at a fast pace.
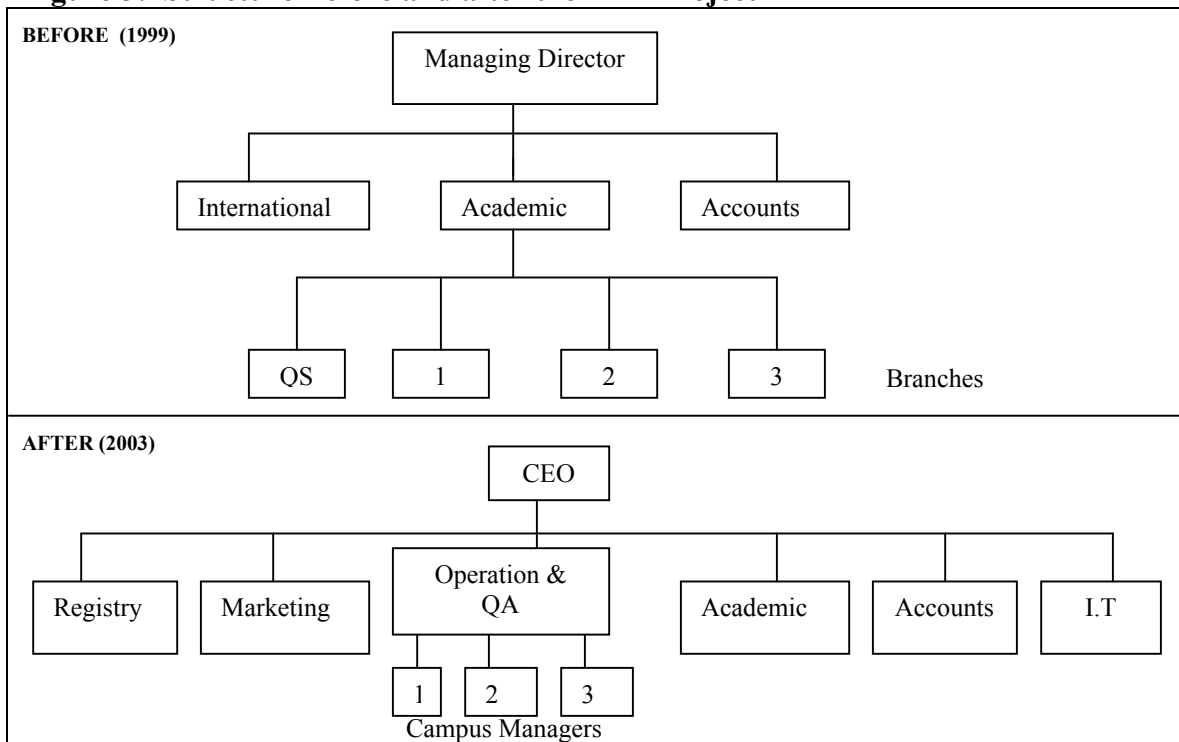
A *Database Management system* has been implemented due to the growth in business. Due to unsuccessful attempts in developing a system in the past, they chose to incorporate a tailor-made system from the market, which would better suit their requirements. This resulted in a better control system.

Impact of the project

The BPR project has been very costly, but the management aims to recover costs and earn increased profits in 2004. The cycle time was reduced since the duplicate processes were deleted during the reengineered 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 with in the identified areas (chunks) ensured the smooth running of the business and the success of the planned process-reengineering project.

Some of the processes improved during the project were standardising enrolment and dealing with enquiries. This resulted in improved customer 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 regular basis.

Figure 3: Structure Before and after the BPR Project

BEFORE (1999)

Managing Director

International — Academic — Accounts

Academic: OS, 1, 2, 3   Branches

AFTER (2003)

CEO

Registry — Marketing — Operation & QA — Academic — Accounts — I.T

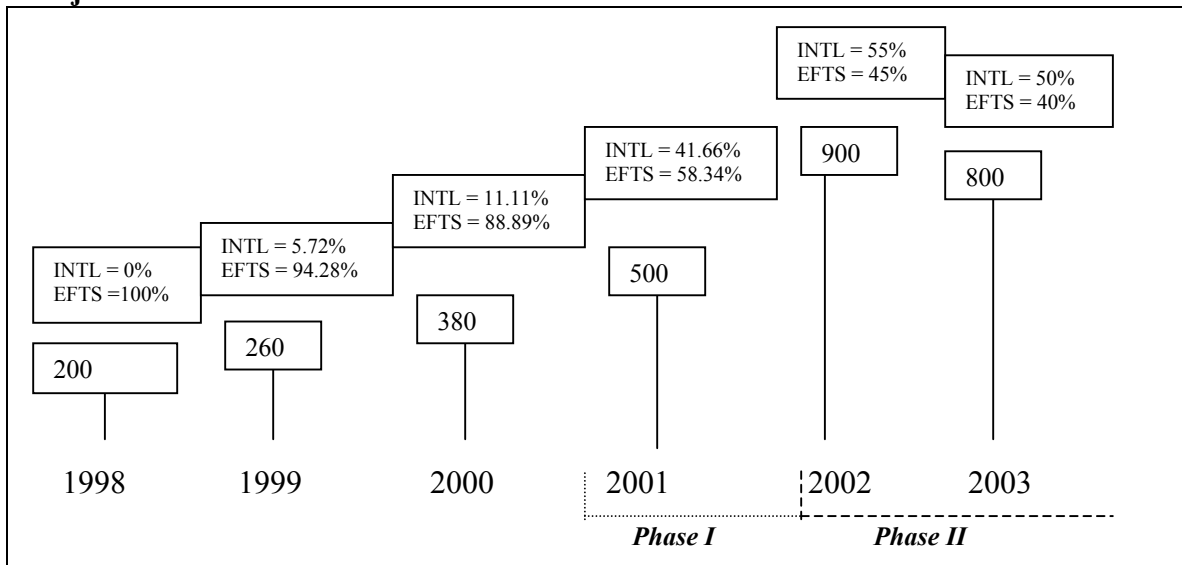Operation & QA: 1, 2, 3
Campus Managers

Source: Interview with the respondent, September 2003

The structure was more defined after the process, with some activities merging and new departments emerging. The new structure was based on the strategies and replaced the old functional structure during the course of the project. This provided a more defined skeleton to the organisation and 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 programs for the existing staff. This new structure facilitates improved efficiency, reduced cycle time and increased control of the operations of the tertiary college.

The second phase of reengineering has been recognised as a continual process. This was due to the hyper-competitive characteristic of the industry.   To achieve defined goals they have to constantly monitor the changes in the environment and plan strategically.

Figure 2: Number of Students Studying at ABC College before and during the BPR Project

					INTL = 55% EFTS = 45%	
						INTL = 50% EFTS = 40%
				INTL = 41.66% EFTS = 58.34%	900	
			INTL = 11.11% EFTS = 88.89%			800
		INTL = 5.72% EFTS = 94.28%				
	INTL = 0% EFTS =100%			500		
			380			
		260				
200						
1998	1999	2000	2001	2002	2003	
			Phase I	Phase II		

Source: Interview with the respondent, September 2003

The above figure shows the decrease in the number of students in the year 2003. There was a fall in number of international students who came to New Zealand this year due to several reasons such as SARS, and the growing strength of the New Zealand dollar, and increasing competition in the global market. Many medium-sized business are undergoing business losses and one institute closed (Perrott, 2003). By reengineering the organisational processes and becoming more efficient, the organisation has been able to withstand the pressures of the industry and has been doing well.

Table 3: Summary of the Impact of the BPR Initiatives at ABC College

Positive Impact

Customer satisfaction was highly improved
Standardisation of enrolment and enquiries procedures
Reduction in cost of operation
Improved lead time
Greater efficiency
Greater control on the operations
Greater flexibility
Able to overcome and maintain profitability during industry downturn in 2003

Negative Impact

Heavy costs incurred due to the BPR effort
Older Managers and other employees were not comfortable with the change.

Conclusion and Recommendations

Like any other business, tertiary education institutes too need to transform their organisation in order to successfully face challenges in a competing environment. It 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 benefit through enhanced customer satisfaction, greater control of operations, improved flexibility to adapt to fluctuating number of student enrolments and increase profitability. Such positive impact through the BPR initiatives is similar the gains observed in other studies (Walker and Black, 2000 and McAdam and Bickerstaff, 2001).

The study emphasises the importance of the systematic selection of processes to be reengineered even before the process is begun. Unlike many BPR initiatives, this study showed dependence on an external agent is not a necessity for successful implementation; it can be undertaken even with internal staff if they have the required expertise and understanding of the project. Use of internal staff to drive the BPR efforts resulted in higher level of organisational 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.

Implementation of BPR in ABC College reveals that BPR efforts can yield better results and if they are complemented by supporting tools such as benchmarking, and human resources training. While information technology is recognised as an important factor to 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 the any tertiary education institute in its artillery to improve its efficiency and performance. Educational institutes desirous of implementing BPR can learn much from the experience of ABC College.

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