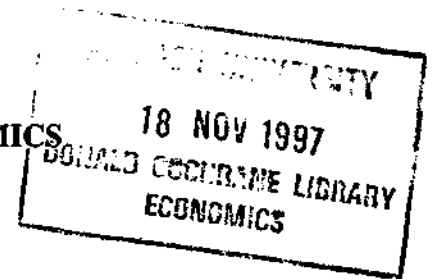


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**TQM IN AUSTRALIA: FACTORS CRITICAL  
TO SUCCESS**

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**ABSTRACT**

Based on the results of three questionnaire surveys and a number of case studies, this paper discusses the status of Total Quality Management in Australian businesses. The results show that TQM is still largely implemented in the manufacturing/operations function with little progress in other functional areas. Overall, the popularity for TQM, statistical process control and quality circles has diminished. The obstacles to the adoption of quality management practices point to the short-term vision of Australian managers and the costs and benefits of TQM. The paper highlights the factors which influence the adoption of quality management practices and presents a profile of a TQM organization.

# TQM IN AUSTRALIA: FACTORS CRITICAL TO SUCCESS

## 1. INTRODUCTION

This paper discusses the trends in the adoption of quality management practices in Australian manufacturing industry and highlights some of the barriers to the adoption of such practices. Furthermore, the paper discusses the factors that are considered to be critical to the adoption of quality improvement programmes. Because of space constraints, it is not intended to review the literature on quality management here but suffice to say that there is now considerable empirical evidence which has shown that the effective implementation of quality improvement practices leads to improvements in organizational performance in terms of both productivity and profitability [see for example American Quality Foundation (1991) Gordon and Wiseman (1995) Maani, Putterill and Sluti (1994) Sohal, Ramsay and Samson (1991)]

Since the early 1990s, the Quality Management Research Unit at Monash University in Melbourne has conducted three questionnaire surveys (1991, 1993 and 1996) as well as a number of case studies on Total Quality Management (TQM) implementation. In early 1991, questionnaires were mailed to 895 manufacturing companies and 365 responses were received, giving a 41% response rate (see Eisen, et al., 1992). The same questionnaire was mailed to 985 firms in late 1993 from which 313 replies were received, providing a 32% response rate (see Sohal, 1995). A slightly modified questionnaire was mailed to 800 firms in late 1996 and 102 replies were received, providing a response rate of 15% (see Terziovski, Sohal and Moss, 1997). The respondents to the three surveys were representative in terms of the major industrial sectors, company size and geographical location. The data collected from the three surveys has been compared in details and some of the significant findings are presented in this paper.

Over the past five years, the members of the Quality Management Research Unit have also completed case study research with over ten companies which had implemented a quality improvement programme. These companies range in size from less than 50 employees to over 10,000 employees and represent a number of different industrial sectors. The findings from this research which relates to critical success factors are also presented in this paper.

## 2. TRENDS IN QUALITY MANAGEMENT PRACTICES-SURVEY RESULTS

### 2.1 Acceptance of Quality in the Organization

The extent to which quality management practices or TQM is accepted by lower level employees is dependent upon the attitudes of management towards quality. The ability of senior managers to maintain, over a long time period, positive attitudes, commitment and involvement will impact on the success of a TQM programme. In this respect, Australian managers have sustained a positive attitude towards quality as shown by the three surveys. Each survey showed that less than five percent were "less supportive" than three years ago, with the remaining roughly equally divided between being "more supportive" or "equally supportive".

Disappointingly, little progress has been made in integrating TQM into areas other than manufacturing/operations. The results from the 1996 survey show a reverse trend in the marketing and the human resources functions with fewer companies adopting quality practices than in previous years. However, the results shows progress being made in the administrative functions. The case study research shows that companies still regard TQM as being applicable to the manufacturing areas only and have not come to realize how the same principles can be applied in

the non-manufacturing areas. This is a major weakness as these areas provides huge potential for improvements and hence increasing the overall competitiveness of the organization.

Another disturbing finding relates to the adoption of various quality practices. TQM gained popularity between 1991 and 1993. This was a period of recession in Australia and many companies were looking at TQM as a mean of improving their performance. Between 1993 and 1996 however, TQM popularity diminished, as did the popularity for adopting statistical process control techniques and quality circles. A greater emphasis on obtaining certification to ISO standards could be one possible reason for this reversing trend, although not desirable.

It is pleasing to see a steady upwards trend in the proportion of companies who assign responsibility for quality to all employees. However, the comparison shows that the proportion of companies assigning responsibility to quality departments reduced significantly between 1991 and 1993 but increased again between 1993 and 1996. Again a reason for this could be the greater emphasis placed by companies on obtaining ISO certification during the 1993 to 1996 period, which has been the primary responsibility of the quality departments (50% of the 1996 sample had obtained certification to ISO standards). However, further analysis shows that firms performed poorly where responsibility was assigned to the quality departments.

Table 1 shows the extent to which various aspect of quality has been integrated within the organization. The figures suggest that many companies are still inwardly focused.

**Table 1: Percentage of firms that have incorporated each strategy, together with the corresponding degree of integration.**

Note that 1 represents no integration and 5 represents complete integration.

Strategy	Percentage of firms that utilize this strategy	Extent of integration
Quality systems have been circulated within the company.	87	4.23
Quality systems have been prepared.	85	4.21
Mission policies have been prepared.	84	4.02
Managers are aware of performance measures.	83	3.80
Mission has been circulated within the company.	79	4.09
Quality is linked to strategic business plans.	79	3.84
Quality indicators are part of key performance indicators.	72	3.38
Mission has been circulated outside the company.	60	2.90
Quality systems have been circulated outside the company.	59	2.59

## **2.2 Correlation Between Practices and Performance**

The 1996 questionnaire was modified to include questions so that the adoption of quality management practices could be correlated with performance. A total of 17 performance measures were used and respondents indicated the impact of quality practices on each of these performance measures on a scale ranging from 1 for no impact to 5 for very high impact. The results show that performance was statistically enhanced by the use of statistical process control and quality circles. Benchmarking and process reengineering also showed trends in the same direction (See Figure 1). Interestingly, ISO 9000 certified companies did not exhibit statistically better performance than non-certified companies.

The correlation between performance and different aspects of customer involvement and supplier involvement were also examined. The results show that organizational performance was high when customers were involved in customer surveys and continuous improvements. In contrast, customer involvement in design and development and in inspection and testing did not influence performance. Similarly, performance was enhanced when supplier agreement contracts existed and when suppliers were heavily involved in changing and improving the system.

## **2.3 Obstacles to Adoption**

The extent to which ten different obstacles impeded the adoption of quality management practices were examined using a scale ranging from 1 for low impact to 5 for very high impact. The primary obstacles identified point to the short-term vision of managers and their lack of understanding of the principles of TQM. Costs and benefits of the quality management initiative were ranked the highest. Resistance by managers also ranked fairly high. These are surprising findings. Over the past two decades managers have been exposed to many change programs however, in every case very similar obstacles are highlighted. Haven't managers learnt anything from previous change initiatives?

## **2.4 Factors Influencing Adoption**

The extent to which various "resources" in the organization impact on the implementation of quality management practices were also examined in the 1996 questionnaire. Statistical analysis revealed that some resources were more crucial than others, with leadership support and staff involvement perceived as the most crucial factors (see Figure 2). Interestingly, government assistance is perceived to have the lowest impact on the implementation of quality management practices

In summary, the results of the three surveys (1991, 1993 and 1996) show:

- Organizational performance suffers when responsibility for quality is allocated to a specialized quality department. Responsibility for quality rests with all employees in the organization.
- Quality management practices are least implemented in the HR area and most implemented in the operations area.
- There is a significant jump in quality management practices implementation in the Administration area.
- The popularity of tools and techniques has diminished even though managers believe that these practices have a positive impact on performance.
- The extent to which leadership training is provided influences organizational performance. Companies that had invested in leadership training are more likely to succeed than those companies that did not invest in leadership training.

- Customer surveys and continuous improvement concepts have a significant effect on organizational performance. On the other hand, customer involvement in design and development, and in inspection and testing did not influence organizational performance.

### **3. CASE STUDY FINDINGS-CSFS**

Our case study research over the past five years has focused on the TQM implementation processes adopted by several Australian manufacturing and service organizations. The aim of this investigation was to identify the factors that contribute to success. It must be pointed out at the outset that all the companies we have studied were considered as successful in their industries and in some cases were leading their competitors. They were using TQM to further enhance their competitiveness in the local and international markets and to further improve employee involvement. Hence, the myth that managers will only pay attention to TQM when the company is facing severe internal and external problems is rejected.

Typically, companies started their quality initiative using a proven methodology (such as the Crosby or Juran approach) and an external consultant to create an awareness of TQM amongst the people at all levels. As part of this awareness creation, the senior management team developed the vision and the mission statement for the organization and made sure that this was effectively communicated to the rest of the organization. In some organizations the TQM awareness workshop was the first time when vision and mission statements were developed. The use of external consultants during the initial stages of the TQM programme assisted in providing an objective perspective and knowledge of what not to do. However, organizations recognized that they should not be totally dependent on external consultants and that they should develop internal champions.

Once basic knowledge of TQM was achieved, the implementation approach was modified to match the specific needs of the individuals and the departments. Only those elements of the TQM philosophy were introduced that were recognized by everyone as being applicable to the organization. In one company the whole TQM philosophy was dramatically simplified to a level where all employees could identify with the key TQM principles.

The major challenge faced by Australian managers in implementing TQM is dealing with the cultural diversity that is present in many organizations. In some large companies workers represent as many as fifty different ethnic minorities and for many English is not their first language. In this environment the introduction of new philosophies and work practices needs to be handled with special care, ensuring that the unique cultural backgrounds of the individuals are considered as part of the overall change programme. TQM is more to do with changing the attitudes and behavior of individuals than it is to do with implementing quality systems and problem solving techniques. Without the right attitudes, very little will be achieved.

In some companies we found that front line employees were still not clear about the exact needs and expectations of their organization's external customers, although most organizations had spent a considerable amount of money and effort in establishing various mechanisms (e.g. customer surveys, focus group discussions) to collect this information. This lack of dissemination of important information to all people within the organization, especially front-line employees, hindered continuous improvements being made.

The establishment of a formal structure within the organization for the implementation of TQM was also a major factor contributing to success. This structure included a Steering Committee at the top of the organization and a strong team of Trainers at the bottom, both providing the necessary environment and support to the Improvement Teams that had been established throughout the

organization. A member from the Steering Committee took on the role of a Sponsor for one or more Improvement Teams, ensuring that all the resources were available to the teams to carry out their activities. Each of the Trainers joined one or more Improvement Teams and took on the role of a Facilitator. Under this structure these Improvement Teams worked very effectively, providing a medium for communicating progress to senior management.

The questionnaire surveys identified a number of impediments to the introduction of quality management practices. Many of these impediments can be overcome or avoided by developing a plan for the introduction of TQM in the organization. In this case each stage of implementation must be considered in detail and the capability of the individuals, departments and the organization must be assessed in completing each stage. Appropriate action in terms of training and education can then be undertaken.

In many organizations we identified substantial opportunities for more effective application of statistical techniques. Senior management leadership, employee commitment, teamwork, etc. were very visible in most organizations however, there was less evidence of the application of statistical tools to improve the capability of processes. This is an area where significant improvements can be achieved by the application of simple statistical techniques.

#### **4. CONCLUSION**

Based on the surveys and the case study research, the characteristics of a successful quality culture change initiative are:

##### **Characteristics of a successful quality culture change**

- Middle managers, front-line managers and staff have a positive attitude towards quality.
- A variety of quality management practices are employed, including Statistical Process Control and Quality Improvement Teams.
- Quality initiatives are primarily introduced to improve the business's performance.
- Responsibility for quality is not assigned to a specialized quality department or person.
- Leadership training is implemented extensively.
- Quality indicators are a crucial part of performance indicators.
- Customer surveys are utilized regularly.
- Customers are involved in the continuous improvement of the business.
- A supplier agreement contract exists.
- Suppliers are involved in the changing and improving of the system.
- Strategic alliances have been formed with customers and suppliers.

From our experience it can be concluded that the adoption of TQM is a major task for organizations which will take a number of years. There is not a single best approach to implementing the TQM philosophy. An approach unique to the needs and culture of the organization must be developed. The implementation must be supported from all levels and training and education must include both hard and soft skills.

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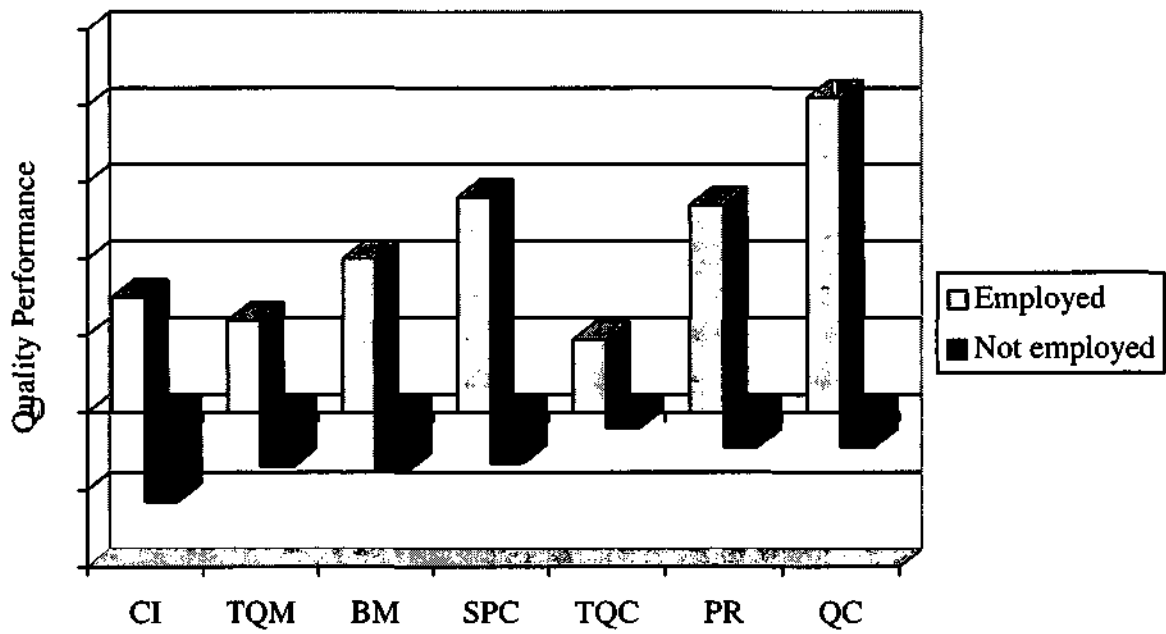
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**Figure 1: Mean level of quality performance as a function of the practices employed.**



CI: Continuous Improvement  
TQM: Total Quality Management  
BM: Benchmarking  
SPC: Statistical Process Control

TQC: Total Quality Control  
PR: Process Re-engineering  
QC: Quality Circles



Figure 2: Mean impact of each resource on the implementation of quality management practices. High scores represent greater impact.

