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BEST PRACTICE IMPLEMENTATION OF TOTAL QUALITY MANAGEMENT: MULTIPLE CROSS-CASE ANALYSIS OF MANUFACTURING AND SERVICE ORGANIZATIONS

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Abstract

The paper examines 'best practice' implementation of Total Quality Management (TQM) in eight Australian manufacturing and service organizations. Multiple cross-case analysis is used to synthesize the information obtained from the case studies. The insights gained from the case studies are used to discuss the critical success factors that characterise Australian quality organisations and the essential steps in implementing TQM. Leadership and quality-based vision of world class performance has emerged as major factors that underpin best practice in TQM implementation. Participation by employees and unions in the development of an organization's vision was seen as critical in gaining high level commitment to the organization's goals. Other critical success factors include: the identification of customer expectations and measurement of perceptions; clearly defined, and agreed to by all, strategy for implementation; establishment of a formal structure for controlling, monitoring and reporting improvement initiatives; implementation of cross-functional improvement teams and natural work teams; and the implementation of a formal quality assurance system. In the majority of cases we found that implementation of TQM was a difficult process that required on-going commitment from the 'top floor' and the 'shop floor.'

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MULTIPLE CROSS-CASE ANALYSIS OF MANUFACTURING AND SERVICE ORGANIZATIONS

1. INTRODUCTION

Total Quality Management (TQM) is described as a comprehensive set of processes, which engage all people in a company on process improvements. TQM requires organizations to design their services and products with knowledge of their customer requirements. This involves operations, marketing, distribution and support activities to meet customer expectations and to increase company performance. There is growing evidence emerging from the literature, based on empirical research, that improvements in quality leads to increases in productivity, performance and profits. The American Quality Foundation carried out a study that focussed on the quality processes of organisations in Canada, Germany, Japan and the United States. The study found that virtually every organisation in the sample indicated that quality was a crucial factor in their strategic performance [1]. Ittner [2], based on data from two manufacturing plants, shows that indirect gains from improved quality are significantly larger than the corresponding direct effects. His evidence indicates that the indirect productivity gains are at least two or three times the direct benefits attributable to lower scrap, rework and inventory holding costs. Ittner also sites other studies that have found a positive correlation between quality and productivity. These studies include: Garvin [3], Hotard [4], Krafcik [5], Patterson and Engelkemeyer [6] and US General Accounting Office (GAO Study) [7].

In the case of Australia and New Zealand, a number of studies have been conducted over the past five years that have focussed on TQM and organisational performance. Maani, Putterill and Sluti [8] have been able to show empirically that in manufacturing companies in New Zealand, improving quality positively enhances operational performance and productivity, and certain indicators of business performance. The researchers found that the association most profound between quality and process utilisation, with the second largest impact of quality being on manufacturing costs. Sohal, Ramsay and Samson [9] also provide evidence of companies achieving both tangible and intangible benefits from quality improvement processes adopted by Australian companies. They found that benefits do not happen quickly and that the time needed to change the organisational culture and attitudes of the workforce, should not be underestimated. Managers must learn to be patient and not expect benefits from their quality improvement efforts in the short term. The US General Accounting Office Study [7] found that, it took an average of 2.5 years to realise significant bottom-line results as a result of TQM.

Although the connection between quality and its benefits is beginning to be understood, the processes associated with the implementation of the TQM philosophy and methods are not well understood. This weakness is also highlighted by Gupta and Ash [10] who point out that there are many success stories about the implementation of work teams in the literature and the popular press. However, very few of these stories discuss the process of work-team implementation in any detail. Furthermore, the quantitative analysis of a few variables across large samples generally fails to capture process and multiple stakeholder considerations. Using longitudinal and multisource data makes the case study approach well suited for management inquiry into unique situations [11]. Therefore, this paper examines, using a case study approach, Australian companies that have adopted the TQM philosophy and methods. Since the end of the 1980's many Australian companies have been implementing TQM with mixed results. Fox [12] points out that failures in the area of TQM are legion, and many Australian companies which have tried to introduce TQM have failed to achieve their full potential. This

is mainly due to the absence of CEO commitment and the failure of managers to recognise the link between TQM practice and organisational performance. Why do such failures in TQM occur, when paradoxically, it is such initiatives as the successful implementation of quality management practice that will enable firms to achieve international "best practice?" Garvin [13] articulates one reason by stating that:

> *"Its technical tools may be well developed but its theory and practice lag far behind..anecdotes remain the main source of most recommendations...quality remains a fertile area for research. "*

The purpose of our investigation is to study a variety of Australian organisations. This would allow us to gain insights into the content issues in terms of what TQM can do for an organisation and the process issues involved in successfully implementing TQM [14]. We present a number of case examples of TQM implementation based on our original case studies. [15, 16, 19, 20, 21, 22, 23, 24]. The insights gained from multiple cross-case analysis provide useful lessons concerning the introduction of a TQM process into an organization and the factors that contribute to success. The critical success factors (best TQM practices) are identified and implications for managers are discussed. The multiple cross-case analysis was facilitated by addressing the following questions for each case study:

- What is the reason for introducing a TQM based management philosophy?
- How did the organisation proceed down the path of culture change?
- What difficulties were encountered and how were these difficulties overcome?
- What lessons can be learned from the implementation process?
- What benefits have been achieved?

2. CASE EXAMPLES FROM AUSTRALIAN ORGANISATIONS

SOUTH PACIFIC TYRES

SPT employs over 6400 people in the three plants in Somerton, Thomastown and Footscray (Aust) and Upper Hutt (NZ); this includes marketing and distribution. In the 1993 financial year, SPT sales exceeded $1 billion. The company produced over 7.2 million tyres, a daily average of around 29,000. SPT exports approximately $60 million of its production to 24 countries around the world. The Company also operates at a retail level in Australia through Beaurepaires for Tyres, Goodyear Auto Service Centres and McLeod Tyres.

Benchmarking and the introduction of key performance indicators were the initial features of the TQM implementation process. In order to achieve its competitive goals, SPT had to identify how big the gaps were in relation to its international competitors. As part of the world wide Goodyear organisation, SPT was able to benchmark with 46 plants in 25 countries. This benchmarking involved two elements: Key Performance Indicators (KPI) and Technology Transfer Systems (TTS). KPI's are used to compare differences across a range of parameters that are then explored in the appropriate level of detail to reveal areas of excellence. Technology Transfer Systems then allow for the implementation of appropriate change.

Following the initial benchmarking exercise, an "Organisational Effectiveness Framework" was developed based on the TQM philosophy known at SPT as Total Quality Culture (TQC). As part of this framework a step-change innovation strategy was developed. A key component of the strategy was to lift tyre building from the levels of the 1970's to the leading edge technology available in the world. SPT and Mitsubishi Heavy Industries (MHI) in Japan, agreed to jointly develop technology that would supersede existing technology in terms of both productivity and quality. The TQC process was a core aspect of a larger, more comprehensive investment program that was based on SPT's corporate strategy and vision. SPT's corporate strategy focused on the introduction of new technology, re-structuring of the organisation and fully utilising the benefits of benchmarking indicators.

A cross-functional project team was established to oversee the development of the MHI technology development. During January 1990, SPT sent representatives to MHI Nagasaki for dry test observations of the proposed equipment. It became apparent to SPT that in order to make the new technology perform to design capacity, the workplace culture would have to be changed. During August 1991, the prototype machine was installed at the Somerton plant. Extensive running of the prototype took place followed by the installation of the first production machine in June 1993. As a result of the pilot trial, nine other machines were installed. The process of machine development took many months with several visits to Japan by the project team and several visits to Australia by the Japanese MHI team. There was a lot of emphasis within the teams on the importance of co-operation, trust, mutual respect and excellence in performance. These were fundamental values in dealing with the Japanese.

Another shared value SPT had with the Japanese was the priority they placed on quality management. Quality is considered a way of running the business at SPT. Certification to ISO 9002 was achieved in a united effort from the "top floor" to the "shop floor." There is a separate Quality Assurance Group within SPT. This group deals with customer complaints. For example, a retail customer registers a complaint at a tyre service as a result of a faulty product. The complaint is recorded at the Defective New Stock System. The message then comes back to the Quality Assurance Group for action. High levels of customer satisfaction have been achieved as demonstrated by a recent award received from SPT's major customer, Ford Australia.

The success of the MHI project was mainly due to the effectiveness of the project team and their effective communication with MHI Japan. A contributing factor to the effectiveness of the project team was the decision to send an operator and a foreman to Japan to work with the MHI cross-functional team. The operator and the foreman were given an opportunity to give a presentation on their trip to MHI Japan. The presentation was given to the entire SPT workforce and was very well received. The shop floor employees saw this particular operator as the "champion of the change process" who was able to bridge the gap between management and the shop floor. His ability to communicate with the "top floor" and the "shop floor" clearly identified the position to where management wanted to go and where the shop floor wanted to stay. This ensured that the project got off to a very good start. However, there was a small group of employees at the shop floor level that had difficulty in seeing why the new technology was required and how the new technology was going to help them. A large part of this resistance to change stemmed from a fear of the unknown.

In order to overcome these uncertainties, a communication strategy was specially formulated for the MHI project. This strategy provided for the preparation of the news bulletin titled "Building The Future - MHI Update." Shopfloor employee sharing their experience with the technology following their trips to Japan. A bulletin board was located in the plant to post notices and pictures detailing the projects' progress. SPT also realised the need for efficient

communication between team members responsible for the operation of these new machines as well as those supplying components and consuming the finished assembled tyres. The use of a radio network was investigated and implemented in order to improve the communications and response time within each group. Over 70 per cent of SPT's workforce come from a non-English speaking background (NESB). The cultural diversity within SPT and the communication skills required to operate the new technology created a need for a literacy/numeracy training program. The literacy/numeracy training program helped NESB operators with their confidence through better communication. This in turn enabled them to apply for MHI positions. The level of sophistication of the MHI machine required an operator selection process to ensure that operators were selected that had the right skills and abilities to operate the MHI equipment. Therefore, SPT developed a unique employee selection process as part of its overall approach to Human Resource Management.

Several barriers to the implementation of best practice TQM emerged as a result of introducing new technology in an existing manufacturing culture and the perceived uncertainties associated with that. The traditional role of the foreman as the "expert" was a major barrier that had to be eliminated in order to clear the way for operators to be trained to think for themselves and solve problems. The traditional foreman/worker relationship was eliminated by subsuming the foreman as part of a team of equals. However, the position of the foreman was still critical in the overall running of the MHI section. For example, the final responsibility on the job such as Occupational Health and Safety, performance check-offs for the operators were still left with the foreman.

Furthermore, the unions at SPT were concerned about downsizing resulting from the lower labour requirements on the new MHI machines. SPT management was open about this issue and argued that, in the short term, some cuts would be necessary, but in the longer term employment would be created as the new technology would make SPT more competitive. Redundancies did take place after all the machines were installed. This resulted in a tougher stand by the unions with respect to on-going negotiations on MHI machines personnel operating levels. The lack of shopfloor understanding of the TQM principles also created a barrier which impeded the acceptance of the new culture in other parts of SPT. This problem was overcome by constant communication between management and shopfloor relating to the new technology. The main lessons learnt from the best practice implementation of TQM are:

- Technology alone cannot provide increases in productivity and competitiveness without the commitment and skill of the people that operate the machines. The lesson here is that sending an operator to Japan was critical in developing trust and understanding between management and the shopfloor.

- The impact of the new technology on people in other parts of the organisation was underestimated, particularly after downsizing. Although the redundancies went ahead without disrupting production, the residual effect has strained the relationship between management and the shopfloor and has widened the 'them-and-us' gap. The lesson to be learnt here is to plan beyond achieving the set goal so that there are no surprises after the new culture has been bedded down.

- Shopfloor understanding of the TQM principles, concepts and tools was assumed to be reasonably high after some initial training. The lesson to be learnt here is to educate, train and involve all employees whether or not they are directly involved with a pilot project such as the MHI new technology project.

The successful adoption of new technology within a TQM environment had a significant impact on SPT's performance in terms of productivity, efficiency, and change in the workplace culture. However, SPT recognise the longer term outcomes from the new TQM philosophy and methods. A step-change improvement in productivity has been achieved with the new technology. This represents a 300+% improvement over the existing process.The improvement is due to the greater accuracy in building a tyre, where a higher skill level is required to operate the new MHI machines. Although the machine's performance, at this stage, has been below the world best (operating at about 75% of design capacity), the uniform quality of product produced on the new machines is a big advantage over the old machines.

VAN LEER AUSTRALIA

Van Leer Australia Pty Ltd is a subsidiary of a multinational corporation involved in the manufacture of food packaging, plastic containers and steel drums. Van Leer Australia employs approximately 120 people and manufactures six products in Victoria, including fruit trays, paper plates, egg cartons, plastic meat trays and plastic service trays. These products are supplied to customers in the supermarket, farming and meat industries. Van Leer management recognises that to compete effectively, the company must focus on improving plant efficiency, reduce inventory levels and increase autonomy among employees by implementing the Total Quality Management philosophy and methods. The name given to Van Leer quality program is Quartet, an acronym for "Quality and Reliability Through Expertise and Teamwork" and was introduced to Van Leer Australia in 1985. Its evolution was driven by senior management continually stressing its philosophy. Projects that translate to directly measurable benefits to the company were selected, and employees at almost every level were given a chance to contribute. As improvements began to happen, employees were increasingly encouraged by the results they achieved.

Senior management believes that, through this 'slow and steady' approach, Quartet is finally becoming a way of life within the organisation. For example, every senior level meeting includes Quartet on the agenda, and employee unions have also agreed to include Quartet objectives in position descriptions. In order to increase awareness, a small handbook is given to employees as part of their training. The handbook contains the six crucial points of the Quartet philosophy, an introduction to the seven quality tools, and a systematic process for problem solving. Van Leer Australia achieved certification to ISO 9002 (Quality Systems for Design/Development, Production, Installation and Servicing) in April 1991. Data on customer expectations and perceptions is obtained in three ways: individual sales contacts with customers; focus groups and customer surveys. The surveys were a direct result of the quality system certification program. During the program a need for quantitative customer feedback was identified. Customer surveys are now conducted every six months with 10-12 key customers, and focus on their areas - perception of Van Leer as a company, product quality, and service.

Communicating customer expectations and perceptions to lower levels of the organisation has been a key feature of the Quartet program. This involves operators visiting key customers to obtain a better understanding of their needs. Cross-functional improvement teams have been in place for many years at Van Leer. Each team has a team leader who is nominated by the Steering Committee for the duration of the project. As a matter of policy, the team leader is given the authority to implement team recommendations, within the scope of the project. Selection of improvement projects at Van Leer Australia is currently based on customer feedback, and internal opportunities for improvement. Training in the application of the seven quality tools has been provided to every employee. At present, these tools are generally used by project teams for problem solving. These teams have successfully completed a number of

significant improvement projects and the results of these projects have been reported through several media including notice boards, the staff magazine, and internal newsletters. The most successful projects are submitted to the Van Leer International newsletter for publication. Van leer Australia maintains a list of approved vendors. This is another outcome of the certification program. The company is further attempting to establish sole relationships with some of its vendors by working with them on mutually agreed improvement projects.

One example was a project undertaken with a major supplier of raw materials, with whom the existing contract had to be reviewed to meet Van Leer's requirements. Representatives of the supplier spent a full day at the plant in Preston, Victoria, to understand Van Leer's needs. In return, Van Leer personnel visited the supplier's plant to understand the production technology and its constraints. The exercise clearly indicated a lack of capability on the supplier's part to meet Van Leer's production requirements. However, instead of resorting to other sources, Van Leer worked with the supplier to arrange an agreement that would benefit both parties. This shows a change of attitude from one of apathy to concern, and a commitment by the supplier to invest over $1 million in plant upgrades. Van Leer Australia has continued to survive and improve after ten years of TQM and Quartet, despite a period of world-wide recession and an environment of intense competition. The Quartet program has enabled management of each Van Leer site to measure progress and set future improvement objectives.

PACIFIC DUNLOP BEDDING

Dunlop Bedding is a division of the Industrial Foam and Fibre Group of Pacific Dunlop Limited. It is the leading supplier of bedding in Australia and also has an expanding presence in New Zealand, with two manufacturing plants in that country. Approximately 50% of the company's 600 employees are represented by the Federated Furnishing Trades Society, a Division of the Construction, Forestry, Mining and Energy Union. In 1987, Dunlop Bedding management recognised the need to define, implement and sustain international "best practice" in response to the increasing need to become internationally competitive. Dunlop Bedding's Victorian manufacturing site had been using the Value Added Management program for four years with some very good results. The successful implementation of the TQM process in the Victorian operation provided a pilot model to demonstrate how this approach could further enhance the performance of a business unit. The TQM process was extended to four Dunlop Bedding sites in Victoria, Queensland, New South Wales and Western Australia. The process has become an integral part of the business plan.

One of the key issues for Dunlop Bedding subsequent to the commencement of the TQM process was how to move and integrate a number of sites geographically spread across Australia, through a change process that was going to establish a common vision and objectives across all sites. The integrative TQM philosophy and methods proved to be an ideal "vehicle" to ensure that the quality-based vision was communicated and implemented throughout the organisation across all sites within Australia.The company recognised the critical importance of leadership at all levels of the organisation as a key success factor in the process of business improvement. Leadership Profile Inventories developed by Kouzes and Posner [16] were used to evaluate leadership performance and personal improvement plans, and targets to be set.

An integral part of the TQM change process at Dunlop Bedding, has been the development of key performance indicators (KPIs). This approach has been very much externally focussed on customer service objectives. Recently however, Dunlop Bedding focused on establishing KPIs at all levels of the business so that these key indicators are linked to the strategic objectives in

order to enable employees to understand how the business is performing in a competitive sense, and how they can impact on that performance. In addition to this, a customer service survey is conducted on a six monthly basis. This "macro" evaluation is a critical tool in evaluating the efficacy of the company's internal efforts and performance in internal key performance indicators. The survey, asks all key accounts for performance evaluation on a quantitative common scale in the areas of service, quality and value. The survey is then used as an evaluation tool for formal planning sessions in all areas of the business. The purposes of these sessions are to evaluate, set new targets, and plan strategies to improve performance. The use of these KPI's was integral part in evaluating the performance of the TQM process and the effectiveness of the team based organisational structure. A team measurement matrix has been developed by the teams in the Victorian operation. The matrix and the customer survey results provided Dunlop Bedding with the key tool to measure the company's progress towards strategic goals.

Central to the development of KPIs, Dunlop Bedding undertook some research into the area of Benchmarking. Customer service benchmark data reports were built into the management information systems. Benchmarks were also established through an employee survey to measure a number of variables. These variables are: trust in management competence; product quality commitment; employee productivity improvement; training etc., The main problem experienced in implementing benchmarking at Pacific Dunlop was to ensure "apples with apples" comparison in performance measurement. After doing much work on researching benchmarking, Dunlop Bedding also used the Australian Quality Awards (AQA) criteria to evaluate the company's current position with regard to those criteria. It was evident that the company was not in a position to make a strong application for the AQA, across the full criteria, in each state. The main problem was that each state was progressing at a different rate with the implementation of TQM. Victoria and New South Wales applied for Quality Certification to ISO 9000/AS 3902-1987.

Organisational performance outcomes adding value to the organisation have improved as a result of the TQM process. These include:

- Productivity gains of approximately 25-30% in Queensland and Western Australia.
- Improvement in profit performance in F'93 over F'92 of 31% (total EBIT).
- Overall savings through product/process design and working with suppliers of over $500,000 per annum.
- Reduction of inventory levels in the Queensland operation of $300,000.
- Warranty turnaround in Queensland operation reduced from 3 weeks to 2 days.
- Quilt waste in Queensland operation reduced by 11%.
- Gained 4 star National Safety Council of Australia site rating in the NSW operation. During 1991, Dunlop Bedding Victoria achieved 350 consecutive days without a lost time injury.
- Overcharge errors in Victorian operation reduced by approximately 50%.
- 6.7% improvement in leadership profile score over a twelve month period.

The lessons can be learnt from Dunlop Bedding's TQM implementation process are:

- How to take a number of sites, separated by large distances, through a change process focusing on superior customer satisfaction had been one of the key issues for Dunlop Bedding before the TQM change process started. The lesson is that the integrative TQM framework enabled Dunlop Bedding to establish a common set of priorities for culture change across all sites.

- Integrating TQM concepts and principles into the business planning cycle ensures the building of commitment and understanding of the issues in changing the organisation to an international best practice organisation. Secondly, TQM implementation was not perceived as a parallel program that has a finite end but rather as 'the way we do business around here.'

VARIAN AUSTRALIA

Varian Australia, located in Melbourne, Victoria, is a wholly owned subsidiary of an international, diversified, high-technology US-based corporation. Employing about 400 people in Australia, Varian Australia is a completely autonomous operation which designs, sources, manufactures and delivers Optical Spectroscopy Instruments. Customers include those from the environmental industry, university and research laboratories, and industrial laboratories in the chemical industry. Over 90 per cent of its products are exported, mainly to Europe and the United States.

It is difficult to define a starting point for TQM in Varian Australia. It is an organisation which, for almost two decades, has focussed on quality in its products and manufacturing processes. Various manufacturing programs, including Just-In-time (JIT) and Value Added Management, have helped to provide a professional approach to manufacturing. Several quality-specific programs have been tried over the past few years. The current endeavour, called Continuous Improvement Process (CIP), was started in late 1991 and is seen to be the most effective program to date. The CIP initiative has enabled a quality organization to be established. This initiative has provided effective training, control and monitoring of quality improvement activities. Some strengths of the CIP approach are:

- Focus on satisfying both external and internal customers;
- Driven by a formal Quality Council, rather than the Quality Manager;
- Formation of natural work teams as the principal vehicle for continuous improvement.
- Emphasis on 'getting runs on the board' for small projects involving daily work;
- 'Train-the-trainer' concept, through to shop floor;
- Supports the goals of the world-wide Operational Excellence approach to business.

Varian began the TQM process by identifying the specific needs to be addressed by the program. Key areas identified included team building, process improvement and problem solving skills. A Vision Setting Workshop was then held for senior managers, at which the strategy to achieve the goal of becoming the "supplier of first choice" was discussed. The content of further training modules, strategies to meet Operational Excellence goals, and launch of the program were also planned. Further courses were held to provide training for other managers and to facilitate implementation planning. One outcome of these activities was the appointment of a program manager to oversee CIP. Another outcome was the appointment of internal trainers to conduct further training within the organisation. Two pilot teams were then identified, one consisting of senior managers only. Each team selected an improvement project to manage. Full implementation and training followed for the rest of the organisation. In November 1992, Varian Australia obtained certification to ISO 900. Benefits resulting from this include:

- Better control of processes, resulting in consistency from design through to delivery.
- Increased measurement of performance, eg scrap rates.
- Disciplined approach to business.
- Drove and broadened the need for TQM into other areas.

The CIP program at Varian is primarily aimed at improving processes. In addition to this program, Varian has another well-established system to solve product problems. Corrective Action Teams (CATs) were started in August 1986 in most production lines, and generally consist of employees working in the same area as well as some cross functional members. Team members meet once a week to discuss problems, as well as the implementation of other improvement initiatives to their particular area of work. Initially, the inputs to CAT meetings were internal problems, but the majority are now from world-wide field reports received through electronic mail. Varian believes that CATs have played a significant role in making continuous improvement to products and processes. They have also allowed just-in-time (JIT) performance to be achieved, and reduced warranty costs. The CIP program was extended to non-production areas with the aim of making continuous improvement a way of life throughout the organization. Varian initiated a Value Managed relationships (VMR) program with its vendors in 1991. An objective of the VMR program is to rationalise the number of vendors which supply the five thousand active parts to the factory, and thereafter to move towards sole supplier relationships. To realise this goal, several initiatives were undertaken, including conducting seminars with vendors to introduce VMR, training selected vendors to reduce their set-up times, and implementing just-in-time purchasing. Other measures include the tracking of on-time delivery performance for all suppliers on the VMR program.

Varian is an organisation which believes that every process and its output should be measured. Many graphs are on display throughout the factory. This strengthens statistical thinking amongst employees. Approximately every two years, employees are retrained in the use of quality tools. This has now become a standard way of solving problems. Supervisors have benefited through closer cross-functional links with other departments and CATs, and an increased team spirit among employees. A number of methods to recognise achievement are used. These include monthly Operational Excellence newsletters, storyboards displayed on noticeboards for each team, and quarterly team presentations to the Quality Council. Together with CIP, Varian implemented several major programs such as JIT and VMR. The ability and teamwork of senior managers is considered to be the critical factors in the successful management of these overlapping programs.

EXICOM

Exicom employs more than 700 people in research and development; design; electronic and electro-mechanical assembly; precision metal fabrication; plastic injection moulding; distribution; and customer support and installation. In August 1987 Exicom Limited entered into a joint venture with Telecom Australia, (Telecom Technologies Pty Ltd) to jointly develop advanced telephone system technology. The acquisition of AWA Ltd's Telecommunications Division in Australia and New Zealand in September 1988, positioned Exicom Limited as the largest Australian-owned group of telecommunications companies. Exicom gained data, voice, land and mobile radio communications products, major contracts with Telecom Australia and Telecom Corporation of New Zealand.

The advent of industry deregulation and a second Telecommunications Industry carrier, Exicom had to think about changing the workplace culture in order to become internationally competitive. Hence, the adoption of the TQM philosophy was a mandatary goal for success. The aim of the TQM strategy at Exicom was to accelerate organisational efforts beyond the 'usual means' and link them to the strategic goals. Exicom's starting point for the quality journey was the inward looking, technically based manufacturing culture. While buying a section of AWA bought Exicom a workforce and a base, it also bought all the problems of an old fashioned culture which can be characterised by the following traditional features:

- Work practices varied across the site.
- Work instructions were verbal and based on Supervisor's memory.
- The Quality Assurance Department was responsible for quality.
- Documentation was scarce, old and not owned.
- There was no formal training.
- Five resident inspectors were the internal customers.

The implementation of TQM at Exicom was the responsibility of the Site Steering Committee. The Committee comprised 4 employees and 4 management representatives. The purpose of the Committee was to develop the TQM strategy and oversee the progress and the implementation of the various activities of the continuous improvement change process. In order to overcome the old culture barriers, all employees were empowered to make decisions on the quality of their product/service. Their aim was to satisfy their internal customer needs. The scope of this "top down" TQM process necessitated strong emphasis on training on continuous improvement planning and tools and techniques such as statistical process control (SPC) and project management. A staged approach was taken which started off with the basic training to more advanced training such as the executive training program on total quality management. The sponsor of the TQM change process was the Exicom Joint Consultative Committee.

Central to the goal of adopting TQM "as a way of doing business", all site activities were certified to ISO 9000/AS 3901/2-1987. The Human Resources Program had to focus on developing a working understanding of both written and verbal English to support the range of documentation in place under the ISO 9000 certification system. Maximum participation in work groups, target teams and other improvement activities were also addressed by the Human Resource Program. For example, 99 percent of the employees in the Telephone Assembly Department come from a non-English speaking background, from 25 different nationalities. Training courses were conducted in the primary areas of quality, new systems support, people management, literacy, technical skills and on the job instruction techniques. The full range of staff from management to shop floor were participants. Literacy and numeracy were identified as impediments to workplace changes, therefore, a 5 year "English In the Workplace Program" was commissioned from Australian Migrant Education Services (AMES) to lift the skill levels.

A team-based organisation as part of the TQM philosophy enabled Exicom to move to a flatter organisational structure. Team leaders emerged and cross-functional teams were formed. In setting up the teams, Exicom ensured that the appropriate training strategy was in place. Training was provided for facilitators, team leaders, and team members. The team leaders received formal training in how to set up and run the teams, team leadership and coaching skills and technique for systematic problem solving. Education, training and skill formation formed an integral part of the change process, not only with the objective of improving productive performance, but also for the provision of career paths and enhanced job satisfaction. A single bargaining unit was established to handle industrial issues. A local charter was developed to guide the committee in the overall restructuring process. Employee participation and consultation was a major plank in the change platform and the successes on this score alone have clearly underpined the culture change necessary to drive for International Best Practice. The TQM philosophy of local people looking at local problems and causes in order to develop solutions, was viewed as a most worthwhile "bottom up" productivity improvement process.

Benchmarking was one of the critical elements of the TQM implementation process. The objective of this project was to increase Exicom's knowledge of best practice in TQM and gain feedback on Exicom's international standing in order to implement improvements in line with the agreed relevant performance benchmarks. This was done through the identification and study of the best practices adopted by leading manufacturers and then the implementation of these findings. Tour participants consisted of a mix of shop floor and management staff and studied a broad cross section of other companies activities. The benchmarking visits facilitated the development of programs aimed at improving performance standards against these new international benchmarks. Efforts to date have centred around the certification process to ISO 9001 and higher customer quality system requirements and performance levels. Improvement of the quality of the working environment is the goal of the joint Site Occupational Health and Safety Committee. The main barriers in implementing TQM at Exicom were:

- The resistance of middle management. This was tackled by restructuring the organization and redifining roles and responsibilities, involving middle management in the change process, and by education and communication.

- The traditional barriers of workers and bosses. These were addressed by breaking down old practices and replacing them with TQM practices such as teamwork and training.

- Low English comprehension standards. A concentrated effort was made within the TQM change process to increase the standards of English. Support for the English-in-the-Workplace program has resulted in its inclusion in Exicom's overall training strategy, with an on-going commitment.

The main lessons learnt from the TQM implementation process at Exicom were:

- A structure, policy, plans and a steering committee are needed very early in the implementation process. Early credibility is crucial to the future success of the change process. This could only be achieved by the total commitment of 'top floor' and shopfloor through a consultative committee.

There was a tendency of some middle management staff to distance themselves from the process and outcomes of the TQM activities. Communication and involvement of middle management early in the implementation phase are critical in gaining commitment. The new TQM culture has resulted in quantitative and qualitative improvements. For example, management-employee relations improved significantly and productivity increased, helping to boost export sales by 5-20 per cent since the start of the TQM implementation process.

SAFEWAY AUSTRALIA

Safeway, a division of Woolworths Ltd, is the largest supermarket chain in the State of Victoria. It has a total of 132 stores and employs over 17,000 people. More than 10,000 items are sold in their supermarkets, ranging from groceries, deli products, fresh fruits and vegetables and household goods. In 1989 after one of Safeway's country stores reported its twelfth annual loss in a row, the supermarket giant decided to introduce change in the organisation. The corporation was tired of an endless stream of excuses and reasons as to why the store was failing. It wasn't as if changes hadn't been made to turn the situation around. But after a number of attempts, Safeway decided that its efforts had been merely superficial. A total examination was required to resuscitate the store's bottom line. The second option - but unacceptable to senior management-was to close the store. The former general manager was asked to personally fix the problem-one which would normally have been handled by middle

management. This demonstrated the company's commitment to the task. Although Safeway has been satisfied with the good 'family' relationship throughout the company, a strategy was needed to address the differences in culture across all areas of the corporation.

Analysis of the country supermarket quickly showed high levels of wastage, poor staff morale and pilfering of merchandise. The general manager's reaction was to invite all staff members in the store to a meeting and present a full overview of the store's disastrous financial situation, something that had never been done before with previous salvage attempts. The meeting motivated staff to form improvement teams, each focusing on a specific task. Six months later the store recorded a significant profit which doubled after a further six months. The success prompted Safeway to appoint a quality manager to accelerate their commitment to TQM. However, the introduction of Safeway's TQM process, called the Team Participation Scheme, was not without hitches. One of the biggest obstacles was building a basic understanding of TQM principles among staff. Given Safeway's size of nine warehouses, 20 departments and 132 stores, it is easy to see that introducing a scheme - and one that was a big move away from their conventional system - would not be a pushover to implement.

Safeway management addressed some of the issues by appointing 'sponsors' for each improvement project to ensure that good suggestions were communicated throughout the organization. The role of sponsors was clear and included the responsibility to update senior management on the progress of each improvement team. Formal systems were also introduced to provide support after training and the discipline necessary to ensure follow-through of projects. In 1993 Safeway decided that its quality campaign should be judged by the customers rather than by a third party certification authority. Safeway uses several methods for gathering customer information, including market surveys, focus groups and suggestion boxes. Market surveys are conducted on a regular basis by professional market research organizations. Some stores have also held focus groups to better understand customer needs at a more personal level. Although customers are not paid for attending these sessions, Safeway has found that shoppers are willing to take part in these focus meetings. The frequency of focus groups has increased recently, with most stores now holding a focus group every four to six weeks. When the focus group meetings first began, participants were asked whether they perceived any problems with the service they received. As the majority of responses of such questions were 'no', staff interviewers found it difficult to identify problem areas which could be addressed. Safeway is proud of their customer relations, which stem directly from their TQM program. One store, for example, maintains stock of a product that is not a shelf item simply to meet the needs of one customer. The product is kept in a store room for the customer, who has continued to shop at this particular supermarket regularly for many years.

A formal structure is used to monitor and control quality improvement activities throughout the organization. Safeway has formed a Quality Council, which has a three tiered structure - store level, area level and state level. The council is designed to review project results and may authorise some operational changes and expenditure. The Quality Council also enables successful ideas to be communicated company wide. Although no franchises exist within the Safeway group, each store is managed as an individual business unit. Improvement projects are therefore managed predominantly by store managers, although the sponsors appointed for each project may be at a higher level in the organisation.

One area of improvement across the whole organization is a sharp decrease in the percentage of merchandise spoilt or damaged by customers or staff. Before putting together a program aimed at improving the amount of spoilt or damaged merchandise, the company averaged spoilt goods of 1.29 per cent of sales. After just six weeks the figure had dropped to 0.4 per cent. Some of the strategies included introducing a 'repair shop' for damaged merchandise,

training all staff on correct merchandise handling, and introducing a rotation card that advises staff when to review stock quality. TQM has also impacted upon Safeway's eight buying divisions, some of which have overlapping activities. In this area, the company has worked on initiatives with several key suppliers to form 'win-win' alliances. In one case, Safeway took an unconventional approach in their negotiations with a supplier of dairy products. The two agreed on a mutually acceptable policy in which Safeway agreed to certain conditions from the supplier and the supplier agreed to spend $1 million in plant upgrades to provide a total service, including packaging. In recalling this experience, the product buyer at Safeway explained that the breakthrough could only have been achieved through honesty, integrity and communication between the two parties. The product buyer believes that while quality, cost and delivery are important, they are only the result of honesty, integrity and communication. In the opinion of the product buyer, alliances rather than deals with suppliers help to build loyalty between the two parties.

Safeway encourages its suppliers to take part in reviews to discuss issues such as market growth, sales of particular products and performance against competitors. It believes that four factors are necessary to ensure TQM success - involvement, empowerment, measurement and rewards. The involvement comes from the policy of every manager and team chairperson being required to undertake training in the Team Participation Program. Each store is required to form improvement teams so that employees are given the chance to be involved, although it is not mandatory for staff to be involved. The team structure is specified in the Team Participation Information kit, along with the responsibilities of each team member. At the start of every project, each team is required to identify the objectives and select a quantifiable measure of progress. The team is provided with a large 'scoreboard' to record progress. Scoreboards and minutes of each team meeting are displayed in the office area or staff room in each store.

All levels of staff are empowered to make decisions that affect performance of TQM projects. For example, check-out operators are permitted to accept a customer's estimation of a price if an item's price tag is not clear. Safeway uses several methods to recognise the achievements of employees. If a customer is pleased with a staff member and notifies Safeway's head office, an area manager presents the employee with an 'I care' badge. Safeway does not generally provide financial rewards as incentives, believing that this would convey the wrong message to staff. Instead it's policy is geared more to building a family atmosphere, with activities such as hamper give-aways, celebrating staff birthdays and staff sporting competitions. Safeway sees its TQM program as providing a better understanding of customer needs, and this in turn allows each store to improve its level of service. Safeway's general manager has observed that TQM has made significant improvements with team spirit, morale and personal development of employees. He also makes the point that an employee's loyalty and honesty affects the way the customers behave. Goods lost through internal pilferage as well as shop-lifting have reduced dramatically. One store trebled its sales over 12 months of TQM activities, and found fewer empty food packets on the floor, indicating a decrease in customer abuse of the system.

SMORGON ARC

In 1988 Humes was purchased by Smorgon Consolidated Industries, a private company owned by the Smorgon family. The Humes group of companies were then broken up with most divisions (Concrete, Plastics and Roofing) being sold off, but the ARC operation was retained. Smorgon ARC, as the company is now known, forms a good strategic fit with Smorgon Steel, the operator of a mini steel mill at Laverton, to the West of Melbourne, Victoria. Smorgon ARC is a leading Australian fabricator and distributor of steel reinforcing bar and fabric. The company's 205 workers at Sunshine, Victoria, are largely from a multi-

cultural background represented by the Federation of Industrial Manufacturing and Engineering Employee's Union. Smorgon ARC operates in all Australian States with major manufacturing sites in all capital cities and smaller operations in regular centres. A total of 53 manufacturing and distribution outlets are operated throughout Australia, employing 1300 people.

The acquisition of ARC was a very important one for SCI and came at a time when Smorgon ARC's profitability and market share were falling as a result of increased domestic and international competition. A new Chief Executive Officer (CEO) was appointed in 1988 to reverse the trend. He was faced with outdated plant and equipment which encouraged manually intensive work, demarcation disputes were a regular problem and there was an adversarial approach to industrial relations issues. Employee turnover was high and little thought was given to career structures for shop floor workers. Management structure was vertical, the accident record poor and systems were not integrated, resulting in untimely and outdated information. Consequently, an inward-looking, technically based, lethargic workplace culture evolved, which typically resulted in work that fell short of international standards of quality, productivity and profitability. The four main issues which were emerging for Smorgon in the early 1990's were: customer service; lead time; quality and people.

Having accepted that new technology alone would not provide the required customer service, lead time reduction, quality and attitudinal change in people, the CEO together with his senior management team with the support and encouragement of the unions and employees, had triggered a series of initiatives based on the TQM philosophy and methods which began to turn the company around. One of the very early initiatives was Benchmarking. Shop floor employees were sent overseas to investigate international best practices in all aspects of doing their jobs. Basic indicators in reinforcement fabrication were compared for similarities and differences. Occupational Health and Safety was the other area where comparison within and across industries was made. Indicators such as lost time injury frequency rates, duration rates and incident costs show an improvement in performance. The CEO was beginning to formulate a vision and mission for the organisation. The TQM concept was used as a strategic framework to integrate the various components of the change strategy. As a fundamental and central part of Smorgon ARC culture change strategy, a comprehensive Total Service Management (TSM) survey was conducted involving all levels of staff, employees and customers. The objective of the survey was to identify and analyse performance gaps in terms of quality and customer service and then develop and implement strategies that would exceed customer expectations which in turn would ensure Smorgon ARC's competitiveness.

Results from the TSM survey revealed that employees at all levels of the organisation were very keen to become involved and accept greater responsibility. This feedback together with a similar quality culture audit gave Smorgon ARC the optimism and enthusiasm to maintain the cultural change objectives. Whilst the commitment to customer service has increased the general thrust and momentum of the TSM strategy had stalled over a twelve month period. Several reasons were given for this lack of commitment. The one area where momentum in TSM implementation had been maintained was in the development of closer links with some of Smorgon ARC's major customers and suppliers. For example, the Maintenance Department's internal customer service program. This program is based on the MEV concept (Measurement, Evaluation and Verification) teams. The MEV teams have had great successes in the maintenance department.

The focus and commitment to quality customer service has been reinforced by the recently appointed CEO and respective General Managers in charge of Operations and Sales. The commitment has been made to revitalise TSM through the introduction of the "Crosby" Total

Quality Management process which is currently being implemented nationally. The Crosby method is a quality management concept similar in style to Deming's TQM philosophy. It is envisaged that this process will take approximately 2 years to complete at a cost of $1.5 million. The Crosby TQM method was chosen because it is a proven international system which has the procedures and education system well defined, documented and supported and was considered appropriate for the Smorgon ARC culture. The Crosby method builds on the TSM method by focusing Smorgon ARC on the customers. This is consistent with helping the company achieve the purpose, vision and values. The Crosby philosophy recognises that organisational improvement needs to come not only from the shopfloor, but through improved management practices as well. The TQM implementation process has been lead by the CEO and his team.

The main lessons learnt from the TSM implementation process are that the importance of CEO commitment was underestimated. The outgoing CEO was not personally involved in leading the change process. Secondly, the inappropriate allocation of time to implement the changes. For example, the time needed to train management and staff in the new work practices was underestimated. These issues highlight that without CEO commitment the TQM strategy will eventually run out of "puff" and that workplace culture change requires a significant lead time to implement. The TSM program was used to implement the ISO 9000/AS 3902-1987 Quality System. The result was a formalised system of documentation and review of all TSM projects via the document "control" system which required a disciplined approach to the management of improvement projects. As part of the certification process, employees received training in a number of areas including internal audit programs, flowcharting and basic computer skills, monitoring and evaluation, problem solving and decision making.

A major criticism of the ISO 9000 Standard System has been that it is not a total quality system and that its adoption will not ensure leading-edge quality. Although this criticism has some merit, it misses an important point. Leading-edge quality systems are fundamentally concerned with competitive advantage, whereas the ISO 9002 system is fundamentally concerned with providing purchasers with a standardised way to require that all suppliers have in place good quality assurance systems. In the Smorgon ARC context, ISO 9000 certification should be viewed as an important part of the TQM implementation process. Whilst the reason for undertaking the ISO 9000 certification program was initially based on commercial pre-tendering qualifications, Smorgon ARC is now beginning to realise that the Quality Assurance program is a vital wedge supporting the Total Quality Management philosophy and methods. Since gaining Quality Assurance Certification in December 1992, Smorgon ARC has embraced the opportunity to establish and maintain a management system which emphasises quality in all aspects of business.

Measurement is essential for the success of the improvement process. The old adage is "what we do not measure we cannot control." The TQM process has highlighted the need to establish relevant performance indicators from which the organisation could identify and manage the key results areas. Award Restructuring/Training has required analysis of the skills necessary to perform manufacturing tasks, and an audit to measure existing employee skill levels to reveal training requirements. Training has been a clear case of win/win reform for the company and it's employees. The Consultative Committee has played an important role in discussing, and then implementing, recommendations flowing from the enterprise agreement. Part of the agreement covers issues already discussed, that is, the role of training, teams and new career paths.

As a result of implementing TQM at Smorgon ARC, the following organisational performance improvements have been achieved:

- Literacy and Numeracy surveys have been conducted to establish the required literacy and numeracy competencies. The results in this area have been outstanding. The training is innovative and user friendly and has been influential and supportive of the entire culture change process.

- Occupational Health and Safety is being measured and benchmarked with the best in Australia. Changes in emphasis from the treatment of injuries to treatment prevention have resulted in a 50 per cent improvement in the overall Occupational Health and Safety performance.

- There has been a marked change in the attitude of both management and employees. The climate is more cooperative and accepting of change. Smorgon ARC is fostering a new workplace culture and best practice as a day to day work practice and is striving to *"do ordinary things extraordinarily well."*

- Focus teams are now in place in all States. In Victoria, approximately one-third of all staff are involved in teams to some extent. For example, a focus team from the fabricated steel production line designed and built an interim stacker which allowed continuous production. This resulted in an additional 670 tonnes of fabric output per annum; equal to approximately $900,000 of sales potential.

DON SMALLGOODS

Don Smallgoods Co. Pty Ltd is a fully owned subsidiary of Bunge Australia Pty Ltd. The company manufactures and distributes all types of smallgoods ranging from hams, bacon, sausages, salami, continental sausages, pate and cooked meats. Don employs 450 staff, 90 per cent of which were born overseas. The current sales turnover is in excess of $100 million per annum. Following the takeover by Bunge in 1989, Don's management recognised that a key element for the future success of the company was to shift the emphasis from being production driven to being strong customer driven. Don traditionally knew very little about the competitive position of the company, or where it was heading. This led, over the years, to the development of a very introspective culture. People did not hear the voice of the customer, or feel involved in any of the major decision-making processes. There was clearly a need to develop a culture of communication, cooperation and continuous improvement.

A program called Don VIP, an acronym for Vision, Initiative and Persistence, which are the underpining principles of the Total Quality Management philosophy, was launched in July 1991. Don Smallgoods implemented the VIP program as a vehicle for workplace reform, concentrating on customer focus, employee involvement, benchmarking company performance against the best in the world and the development of new consultative practices. The company used periodic culture audits to monitor the attitudinal changes engendered by its human resources development initiatives, and monitor the cost and quality benefits emanating from its improvement team activities. Organisational performance indicators, as well as departmental KPIs, were developed and refined to provide feedback to all employees on how they were contributing to improvement.

As a result of the culture audits, Don recognised that communication between management and the shopfloor employees was almost non-existent in the organisation. This led to a conscious effort in order to improve communication channels. The new communication

structure based on TQM principles means that the communication between management and employee (union) representatives is channelled up, down and across the organization. Issues can be addressed objectively via the respective committees. The Consultative Committee, made up of management and shopfloor employees, considers the recommendations arising from the various committees established throughout the organization. This has enabled the consultative process to work more effectively over a wide range of issues; whereas previously the single Consultative Committee often became "bogged down" with various issues.

Don benchmarked all operations-manufacturing, distribution, marketing, human resources and financial management against the companies identified as amongst the best in the world. Don has identified leading companies in the US, Europe and Japan as international best practice organisations. One benchmarking team visited the US in 1992, but other benchmarking was limited to domestic companies. After the US benchmarking visit, Don management realized that their benchmarking partners could be found within Australia. The overseas visit, however, reinforced Don's confidence as being one of the leading smallgoods producers in the world as far as quality of product was concerned. However, management realised that they had a long way to go as far as their organizational culture was concerned. Considering these findings, Don's management set out on a journey to become a quality organization.

From a starting point of documented quality processes, Don moved a considerable way down the path to certification to the ISO 9000 Quality Assurance System standards. Following a staged process, Don achieved quality systems approvals to Production Quality Arrangement (PQA) status (mid 1993), and more recently (March 1994) status under the auspices of the Australian Quarantine and Inspection Service (AQIS). The effectiveness of the Quality System is reviewed on a monthly basis by the Senior Management Team taking into consideration trade audits, supplier quality audits, internal audit, corrective actions raised, credit returns and consumer complaints. Don also introduced a program of Supplier Quality Assurance to involve suppliers in quality improvement activities. The company introduced a program of Supplier Quality Audits, where Don Quality staff visit supplier manufacturing facilities and carry out an audit of the operations against the supplier's quality documentation, Australian Quality Standards and the Food Standards Code. The audits are carried out on an annual basis with the aim of reviewing the supplier's performance to Don's requirements, identifying areas of opportunity for improvement and to establish contacts and build closer relationships with suppliers.

Don was selected for a site visit following an evaluation of a written submission for the Australian Quality Award. The site visit was for one full day by an evaluation team of 5, and a detailed feedback report highlighting the strengths and weaknesses using the award criteria, was received. The feedback by the external evaluators provided valuable information about how Don does business. The comments on strengths and weaknesses provided a benchmark for Don in terms of its stage of development in a " total quality management" sense. The main lessons learnt from the implementation of the TQM process at Don are:

- The effects of language problems on the success of the TQM implementation process were not initially appreciated. The lesson is that TQM should be introduced after the organisational context has been fully established.

- Factory supervisors feared the TQM change process because they had little involvement or understanding of what was going on. The lesson is that resistance to change will emerge from supervisors and middle managers if they are not involved from the start of the TQM implementation process. The commitment of a change champion early in the TQM change process is imperative to the successful TQM implementation process. A common vision

articulated by senior management by involving employees at all levels of the organisation and an on-going commitment to continuous improvement and 'walking the talk' are imperative to the successful implementation of TQM. Organisational performance outcomes as a result of the TQM process include significant qualitative and quantitative gains in operational performance.

- The main outcome of the TQM process at Don has been the holistic approach which has emerged. For example, the push toward employee participation and quality improvement was linked with industrial relations via an enterprise agreement which provided reward for improved productivity, and the individual's acquisition and use of new skills and knowledge. Revision of the consultative mechanisms provided greater opportunity for employee input into many areas, particularly training and productivity improvements.

- Another example is the index of lost time resulting from injury decreased from eight in October 1989 to three in 1991. The improvement was largely brought about by education and information provided to employees from non-English speaking backgrounds. Another significant improvement resulting from the TQM process was employee participation, evidenced by the increase in teams from two in July 1991 to 36 in July 1992.

3. MULTIPLE CROSS-CASE ANALYSIS

The general approach in implementing the TQM philosophy and methods amongst the companies has been to use a particular methodology that is suited to the particular culture. As part of this methodology, companies generally create an "awareness" at all levels of the organisation and then later modify their approach to suit the organisation's specific requirements. The public display of commitment from senior management is absolutely critical in launching the quality initiative. This was very much the case at Safeway Australia where the General Manager played an active role in the implementation process; at Smorgon ARC where the new CEO was the "Quality Champion;" This was also the case at SPT where the CEO was the main driving force behind the implementation of the new technology within an evolving Total Quality Culture. Another key feature of successful implementation of TQM is the simplicity of the improvement initiative. At Safeway Australia, the subject of TQM had been simplified to a level where all employees can identify with the key principles. Only the simplest and most relevant problem-solving tools were selected and taught to employees in a simple and straightforward manner. In a number of cases initial attempts did not fully satisfy the expectations of management and employees because the TQM concepts being implemented were off-the-shelf packages which did not contain business specific information. These programs were strong on training but weak on facilitating change-ie., ignoring the cultural and attitudinal issues in the organisation.

Another example is the Smorgon Total Service Management (TSM) program which addressed one specific part of the organisation, customer service. The TSM concept was perceived by management and the shopfloor employees as a finite program that had a beginning and and an end. When the new CEO arrived, the first thing he did was to introduce Total Quality Management based on the Crosby quality management philosophy. This encompasses company-wide practices particularly organisational culture issues such as involvement and participation of employees in teams to address problems and issues that relate to the job specific environment. The companies spent a considerable amount of time and effort putting together a system where individuals and teams can be recognised and rewarded for their achievements. In particular, non-financial rewards were found to be as effective as financial incentives.

The results of our TQM case study research as well as research into other manufacturing improvement initiatives in Australian organisations [17] show that the employee input and participation is centrally important to the potential success of any improvement strategy being implemented. The human resource and cultural issues within an organisation require careful attention. Consultation, training, involvement, reward systems and recognition are vital elements of a successful people management strategy. This was found to be the case in all of the eight cases study examples discussed in this paper. Overall, a number of key factors are recognised as critical to the successful adoption of TQM. These have been discussed in more detail elsewhere [16, 19, 20, 21, 22, 23, 24] and are summarised below:

- *Cultural Diversity and Literacy Skills.* For several of the organisations studied more than 50 per cent of the employees originate from a Non-English speaking background. For Example in the Don Smallgoods, over 90 per cent of the shopfloor employees came from a non-English speaking background. It is of vital importance for the implementation of TQM that the workforce has basic literacy skills.

- *Identification of the strategic direction of the organisation.* For many of the organisations studied, the initial TQM Awareness Workshop was the first time when senior management seriously considered the company's mission statement and policies. Adequate consultation with employees and their acceptance of the mission statement and policies will be vital in obtaining their co-operation in implementing the TQM program.

- *Determination of customer expectations and measurement of perceptions.* Understanding and measuring customer perceptions is vital for continuous improvements. This information must be communicated throughout the organisation, particularly to the employees who produce the goods or deliver the service.

- *Clearly defined, and agreed to by all, strategy for implementation of the TQM program.* This can help to identify potential barriers and an understanding of the organisation's capability to deal with those barriers. This must be detailed enough so that employees can understand the various steps and monitor themselves the progress being made.

- *Establishment of a formal structure for controlling, monitoring, and reporting improvement initiatives.* Companies which did not put in place effective systems for doing these experienced a lack of credibility and suffered from a lack of enthusiasm in the long term. Support groups or mentors were typically put in place by the more successful companies who ensured that appropriate training was being conducted at the right time and adequate resources were made available to the teams to carry out their work.

- *Implementation of cross-functional improvement teams and natural work teams.* In many organisations these teams provided healthy competitive spirit for continuous improvements. The provision of appropriate rewards and recognition should not be over-looked.

- *Implementation of a formal quality assurance system.* This helps to establish discipline within the organisation and improves communication. It also provides a sense of achievement and confidence. Certification to a formal quality system should be seen as only one element of the TQM philosophy and not as an end in itself.

- *New technology alone cannot bring about improvements in quality, productivity and profitability.* People issues are critical and should be considered well before a culture change is envisaged based on the TQM philosophy.

- *Downsizing of the workforce should not be part of the culture change process.* This practice if conducted simultaneously with the implementation of TQM would undermine the culture change process and result in widening the 'trust gap' between management and the employees.

Based on the qualitative analysis of the eight case examples, the following theory is developed of what a quality organisation should look like after several years of practicing best practice in Total Quality Management. In contrasting organizational situations such as unionised and non-unionised firms, large corporations versus small to medium producers and old technology firms versus new technology firms, certain TQM characteristics recur:

3.1 Customer Focus, both internal and external.

Staying close to the customer. All of the eight organisations in our analysis are making a concerted effort to develop closer ties to their customers. These ties, in most cases, increased the likelihood of rapid response to shifts in the market. Companies were able to pick up more differentiated signals from the market and thus to respond to different segments of demand.

3.2 Strategic alliances with suppliers.

Coordination with external firms was found to be crucial in cutting inventories (hence costs), in speeding up the flow of products, and in reducing defects.

3.3 Leadership.

A commitment to change throughout the organisation, driven by the full and public support of the CEO where management encourages trust and involvement. Leadership throughout the organisation pursues continuous improvement in accordance with a shared vision which aims for world class performance in quality, productivity, timeliness, innovation and cost.

3.4 Innovative Human Resource Practices.

The pursuit of a learning quality-based organisation and a commitment to occupational health and safety (OH&S). In all of the cases there was a departure from conventional job classifications, career paths, training and compensation. Best Practice firms recognised that improvements in quality and flexibility require levels of commitment, from individual employees at all levels of the organization and not simply by changing and enforcing the human resource policy.

3.5 Competitive benchmarking and performance measurement system.

Five out of the eight firms pursued the practice of benchmarking and had implemented a performance measurement system based on key performance indicators (KPIs). Firms attempted international benchmarking but later realised that the value for the resources invested did not compare favourably with domestic benchmarking. Best Practice in TQM firms applied benchmarking as part of the planning and vision setting phase of the TQM implementation process and not as an individual program that would change the profitability situation of the firm. For example, SPT applied benchmarking to formulate their strategy and then incorporated benchmarking in the continuous improvement system at the management level and also at the shopfloor level.

3.6 Union commitment.

The relevant unions contribute to the process of change through effective consultation throughout the organisation.

3.7 Flatter organisational structure.

Supported by empowerment of the employees at all levels of the organisation and improved communication. This involved a team-based organisation in all of the eight cases analysed.

3.8 The pursuit of new technology for strategic advantage.

A trait common to the best practice firms was the technology transfer into production and the marketplace. These firms have integrated technology (usually developed by the organisation in partnership with a technology supplier eg. SPT new tyre building technology) into the rest of their business planning, including strategies for personnel, marketing, manufacturing and all other related functional strategies.

4. CONCLUSION

The discussion in this paper has been based on the experiences of companies that have successfully adopted TQM. However, there are many thousands of companies that are struggling to introduce TQM into the workplace and have not progressed beyond the "awareness" stage. The main cause is that senior management in these companies is only paying lip service to implementing TQM without any real commitment to making changes. Lower level managers are frustrated because they cannot convince senior management of the benefits of TQM. What is required is more understanding at senior management level and empirical evidence of the value of TQM. This will only come about by having an open mind and listening to those who do understand and have the detailed knowledge about TQM and its implementation.

The best practice in TQM implementations discussed above are reinforcing. Indeed they form a single, integrated TQM strategy for organisational change. However, the specific practices that characterise best practice for individual industry types cannot be treated as individual items on a menu of best practices which firms can pick and choose at will. Organisations that are recognised as quality organisations by winning quality awards and sustaining the continuous improvement in organisational performance are those that tailor their QM practices that best measure up to their size and needs and then they formulate the implementation strategy that will ensure that the practices they are implementing 'fit comfortably'. The erroneous idea that there is a "trade off relationship" between quality and quantity must be discarded. In fact, when proper attention is paid to quality, productivity improvement follows automatically. The responsibility of those who work "in" the system should be increased. They should be trained in the seven basic statistical tools; and properly trained to carry out their jobs. Above all, they must be trusted to do their job properly when they are given a chance.

The main task of those in management is to constantly work on the systems for which they are responsible. They are the only people with the power to change the systems. To do this, people must be trained in the use of the statistical techniques to provide the basis for continuous improvement. "Imagineering" should also be stimulated. This is simply imagining how things would be if everything was perfect and comparing that with reality. In this way, it becomes easier to identify problems and purpose solutions. Outdated habits such as mass inspection (this is too expensive and occurs too late) and holding the workers responsible for all errors (in fact, 85% of the causes of unsatisfactory work, or quality, are caused by faults of or in the system itself. It is management's job to change and improve the system) must be discarded. We must get it right the first time.

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