

**A STUDY OF THE RELATIONSHIP BETWEEN
QUALITY MANAGEMENT PRACTICES AND
PERFORMANCE IN SMALL BUSINESSES**

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ABSTRACT

A considerable amount of resources are being deployed by organisations of all sizes and types towards implementing Total Quality Management and other improvement strategies. However, little is known about the impact these practices are having on organisational performance, particularly for small- and medium-sized businesses. This paper examines the relationship between quality management practices and performance in small businesses. Over the past decade a number of empirical studies has been conducted that examine the link between quality management practices and organisational performance however, most of these have focused on larger organisations. This study uses data collected from 62 small business in Australia and uses the Australian Quality Awards framework to determine the link between quality management practices and business performance.

KEYWORDS

Quality management, business performance, Australia, small business.

A STUDY OF THE RELATIONSHIP BETWEEN QUALITY MANAGEMENT PRACTICES AND PERFORMANCE IN SMALL BUSINESSES

INTRODUCTION:

Total Quality Management (TQM) can be seen as an extension of the traditional manufacturing quality process but one that encompasses the total organisation, regardless of a particular discipline. Daft (1997) defines TQM as "...a concept that focuses on managing the total organisation to deliver quality to customers. The author goes on to identify four significant elements that make up the concept - ".employee involvement; focus on the customer, benchmarking; and, continuous improvement" (p61). Daft also cites the work of Dean and Bowen (1994) where the authors identified TQM as a "...philosophy of organisation-wide commitment to continuous improvement, with the focus on teamwork, increasing customer satisfaction and lowering costs. TQM works through horizontal collaboration across functions and departments and extends to include customers and suppliers".

Oakland (1993) states that TQM is more than "...shifting the detection of problems from the customer to the producer". The author articulates the need for a comprehensive approach and that it should be in place in order for the organisation to improve upon its "...competitiveness, effectiveness and flexibility" (p22). The author goes on to identify the necessity for management to adopt TQM as part of the overall strategic planning for quality.

This view is supported by Evans and Lindsay (1993) who state that TQM "...implies that quality is not solely a control, or technical issue, but that quality must be addressed from the perspective of strategic management" (p33).

This paper examines the relationship between quality management practices and performance in small businesses. Over the past decade a number of empirical studies have been conducted that examines the link between quality management practices and organisational performance however, most of these have focused on larger organisations.

The remainder of this paper is structured as follows. The next section reviews some of the recent, empirically based studies that examine the link between quality management practices and organisational performance. A review of the recent research on TQM's impact on overall organisational performance is deemed to be appropriate given the recent business articles questioning its viability, especially for small to medium-sized businesses (Gome, 1996:38-44). Also, Garvin (1988) states that until organisations identify a strong connection between quality processes and the bottom line, senior management will not take TQM seriously. The section following the literature review presents the framework used in our research and describes the research methodology. This is then followed by the results from our study. The paper ends with some conclusions and recommendations for further research.

LITERATURE REVIEW:

A number of recent studies have examined the relationship between quality management practices and organisational performance. One of the most widely-cited research projects on quality management practice (Adam, 1994, Powell, 1995, Forker, 1996) was the International Quality Study conducted jointly by the American Quality Foundation and the public accounting firm Ernst & Young (Adam, 1994:44). The study was quite broad, looking at 945 management practices in more than 580 organisations over four industries on three continents. The main aim of the study was to identify quality management practices that have a significant impact on organisational performance. The survey results indicated that only three management practices (process improvement methods, strategic plan deployment, and supplier certification programs) have significant impact on performance (Adam, 1994:29).

The U.S. government's General Accounting Office Study was commissioned by Congress to "...determine the impact of total quality management practices on the performance of U.S. companies" (GAO Study, 1991:13). This study had three main objectives, namely: to identify what could be achieved by organisations that adopted TQM initiatives; how organisations could achieve improvements in quality; and, what lesson could be learned for U.S. organisations in general (p13). The criteria for the study was based on the requirements for the Malcolm Baldrige Award (based on the Deming Prize in Japan). As a result of this study, the GAO (1991) reported that firms who had adopted quality management practices, experience an overall improvement in corporate performance. In addition to this, companies that used TQM practices achieved greater customer satisfaction, increased market share and improved profitability(p2).

Maani, Putterill and Sluti (1994), built on the research conducted by Sluti (1992) for Sluti's doctoral dissertation. This research is considered to be one of the most complete empirical studies that rigorously tests the strength of the relationship between quality practice and organisational performance. The aim of this study, with associated empirical verification into operational and strategic value of quality improvement, was to narrow the gap between theory and practice (Maani et al, 1994:19). The researchers had two basic questions that they were attempting to test:

1. What changes in operational performance can be expected when more stringent quality practices are adopted by managers; and,
2. Does quality change in manufacturing show up as changes in performance at the level of the business unit (p22).

In order to answer these questions, the researchers proposed The Quality-Performance Model that provided a framework for testing the links between quality and various dimensions of manufacturing performance. The study showed that process output as measured by labour volume, labour cost and hourly output was significantly related to four measures of business performances: sales variant, return on assets, sales volume and market share. The study also showed that manufacturing performance was significantly related to all four business performance measures (ROA, ROS, sales volume and market share). Overall, when the total model was considered, process output and manufacturing performance (themselves influenced by utilisation and quality) explained business performance on return on sales. However, the three other measures of performance were not explained. In addition, while direct relationships between quality and business financial performance were not significant, the relationship between quality and operational outcomes were. Quality practice had significant positive impact on performance measures for process utilisation, process output, production output, production costs, work-in-process, inventory levels and on-time delivery (p32).

Powell (1995) employed the resource-based approach and other theoretical perspectives to examine TQM as a potential source of sustainable competitive advantage. He states that resource theory provides a useful perspective and that success derives from economically valuable resources that other firms cannot imitate and that resource bundles remain basically heterogeneous. The question that Powell asks is: "Is TQM such a resource?"(p17). In order to answer this question, he studied 54 TQM firms (as opposed to non-TQM firms). Powell found that TQM can produce economic value to the firm, but that it has not done so for all TQM adopters. Firms with TQM had higher performance from firms without TQM, controlling for industry and organisational size. Firms with more advanced implementation of TQM compared to less advanced implementation had greater performance. Firms with greater implementation of TQM tools, for example benchmarking, quality training, process improvement, flexible manufacturing, etc., had greater performance than those with less implementation. In addition, firms that had long-term TQM programs did not perform better than those with short-term TQM programs (p26) and manufacturing TQM firms do not outperform service TQM firms (p27).

Benson et al (1991) studied 152 general managers and quality managers of 77 business units in 20 companies. Using a system-structural view of quality management, the researchers suggested that quality management be viewed as a simple three-stage process: organisational quality context; determination of organisational change needs; and, organisational response to ensure survival or effectiveness. This three stage process is supported by a quality performance feedback loop. These researchers found that manager's

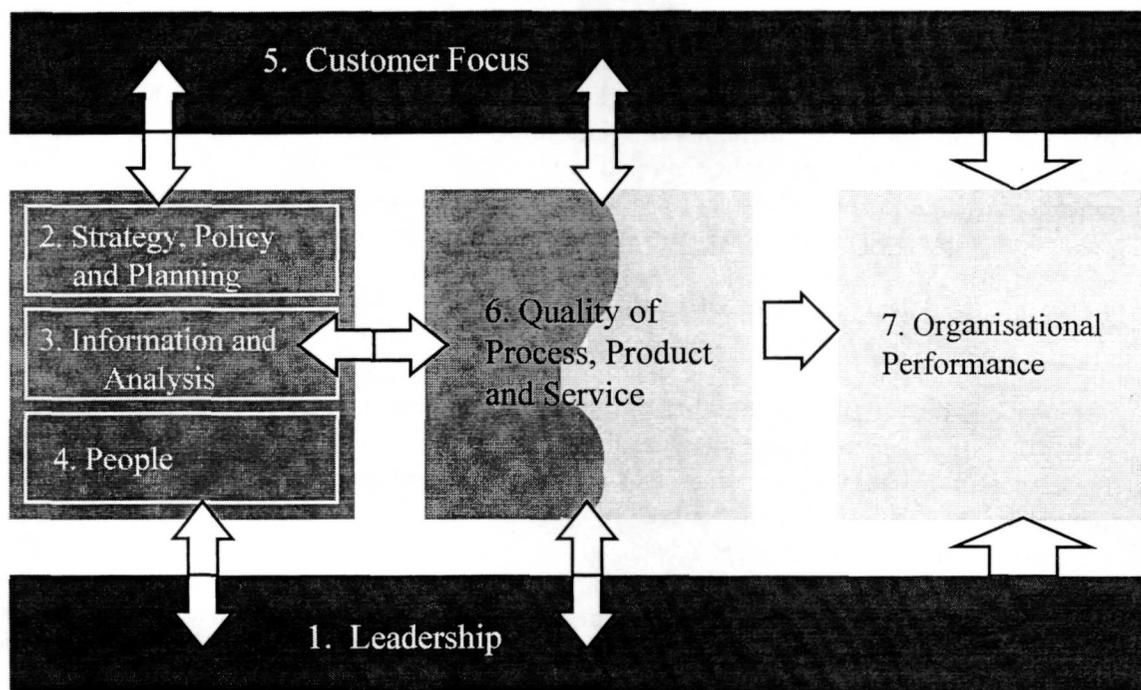
views of both actual and ideal quality management are influenced by the organisational quality contexts and confirmed the need for the model's quality-performance feedback loop.

Other studies of this nature include the research by Adam Jr. (1994) and Forker (1996). Adam Jr. (1994) extended the work of Benson et al (1991). He used data collected from 187 manufacturing firms of varying size and manufacturing executives from the membership of the Operations Management Association (USA) to examine the relationship between quality improvement approaches and actual operating and financial performance. Forker's (1996) study was concentrated within the furniture industry and its aim was to examine the contribution of quality to business performance. Using data collected from 65 firms, Forker showed that design quality was the only predictor for ROI and ROS with company reputation being the sole predictor for market share and return on sales growth. In addition, product improvement was the only predictor for return on investment growth. Forker (1996) concluded that quality helps a firm to gain a competitive advantage by delivering goods to the marketplace that meet customer needs. The results also show that the quality dimensions used by Forker are correlated with business performance.

RESEARCH FRAMEWORK AND METHODOLOGY

The framework adopted for this study is that used by the Australian Quality Council for the Australian Quality Awards. (Australian Quality Council, 1995). This framework, presented in Figure 1, is designed for use in self-assessment of performance as well as for application and evaluation of the Awards. It is largely based on the Deming Prize in Japan and the Malcolm Baldrige Award in the USA. The six independent variables are identified as leadership, strategy, policy and planning, information and analysis, people, customer focus and quality of process, product and service. The dependent variable is that of organisational performance.

Figure 1: The Australia Quality Awards Model



Source: Australian Quality Awards Criteria (1995), Australian Quality Council, p8.

The questionnaire used for this study consisted of seven main sections, each relating to the elements of the AQA framework presented in Figure 1. Section 1 on "Leadership" deals with a number of issues such as

the business structure; achievement of goals and how this relates to the concepts of quality; and how the management system encourages continuous improvement and collective involvement in the achievement of goals. This section also covers business values and leadership issues both in the business and in the community.

Section 2 on "Strategy, Policy and Planning" deals with the development of the quality strategy, policy and plans for implementation, as well as the management review process. Section 3 on "Information and Analysis" deals with how the business determines what data should be collected, analysed, and used for effective and efficient routine work and for making improvements. Section 4 on "People" deals with the human resource management planning, employee involvement, performance management, education and training, and communication. Section 5 on "Customer focus" deals with the business's identification of the needs and expectations and how it manages its relationship with customers. Section 6 on "Quality of Process, Product and Service" deals with design and innovation, supplier relationships, management and improvement of processes, and the quality of the products and services.

The impact of each of the six independent variables was measured using five outcomes namely: cost of producing the product or service, quality of the product or service, flexibility of delivery, timeliness of delivery and productivity improvements. This list of five outcomes was listed in each of the six sections mentioned above and respondents were asked to indicate the rate of impact on each outcome using a 5-point scale where 5 corresponds to very high and 1 to very low.

Finally, Section 7 on "Business Performance" deals with the practices relating to performance measurements and business performance outcomes. Business outcomes are measured using sales, exports, cash flow, employment levels, overall competitiveness and market share.

Before accepting the final questionnaire, it was tested with a number of academics, officers from the Australian Quality Council (AQC) and a number of small businesses located in Melbourne. The final questionnaire, together with a covering letter and a reply paid return envelope, were mailed to 800 small businesses selected from a data base held by the AQC. The data base had been compiled by the AQC over a number of years. The 130 questionnaires returned undelivered confirmed our initial suspicion that the data base was dated. Hence, 670 small businesses had received the questionnaire.

After a follow-up letter, the survey resulted in 62 completed replies being received. This represents a response rate of 9.23% and is much lower than expected. One reason for this low response rate could have been the timing of the survey. It was mailed out at the beginning of November with replies being received over the period from mid-November to mid-December.

RESPONDENT PROFILE

Table 1 shows the key characteristics of the sixty-two respondents. Almost one-half (46%) of the sample employs less than 20 people, 14% employs between 21 and 35 people and 22% employ between 36 and 100 people. Seventeen per cent of the sample had more than 100 employees. The annual sales revenue figures are also presented in Table 1. Approximately one-third (33%) of the sample had annual sales revenue of less than A\$3 million and another one-third (32%) had sales revenue of more than A\$15 million. The remainder having sales revenue between A\$3 million and A\$15 million. Based on these statistics, we regard our sample as small businesses. Just over two-thirds (68%) of the companies are privately-owned with the remainder equally split between publicly-owned and family-owned businesses

Table 1: Demographics of Respondents

Demographic	Percentage
Number of employees on the site	
<6	7
7 - 12	22
13 - 20	17
21 - 35	14
36 - 100	22
>100	17
Annual sales (Australian \$)	
<500,000	4
500,000 - 3 million	29
3 million - 6 million	20
6 million - 15 million	16
15 million - 45 million	18
>45 million	14
Ownership	
Publicly owned	16
Privately owned	68
Family company	16

ANALYSIS AND RESULTS

In this section the principal findings associated with each of the variables described in the previous section are presented.

Leadership Practices

Six practices relating to leadership were listed in the questionnaire and respondents were asked to indicate, on a 5-point scale (1 = very low and 5 = very high), the extent to which each of these was evident in their organisation. Table 2 shows the mean rank corresponding to each practice. The mean rank is not as intuitively appealing as other measures of central tendency. However, the Friedman ANOVA, which is used to assess the findings in this paper, strictly speaking examines the mean ranks rather than the mean or the median. Accordingly, the means and the medians were not tested and are not reported in this paper.

Two practices that are rated fairly high relate to quality culture ("Quality is a part of the way we do things around here") and recognition ("Management promotes quality improvement efforts"). However, employee encouragement ("Management encourages employees to take a strategic perspective") and employee support ("Management ensures employees are well supported through times of change") are rated as low to medium.

A Friedman ANOVA was conducted to ascertain whether or not the various practices are present to the same extent. Alpha was set at 0.05. This procedure revealed that some of the practices were more evident than other practices, $\chi^2(5) = 30.62, p < 0.01$. In particular, a series of pairwise comparisons, using the methods recommended by Seigel and Castellan (1988), revealed that some practices were observed more prevalently than others. For example, "Quality is part of the way we do things around here" and "Management promotes quality improvement efforts" were observed more prevalently than "Management ensures employees are well supported through times of change" and "Management encourages employees to take a strategic perspective" (see Table 2). The remaining practices did not differ significantly from either of these two sets of items.

Table 2: Practices Relating to Leadership
(Practices that are observed prevalently received higher ranks)

Practice	Mean Rank
Quality is part of the way we do things around here	4.17
Management promotes quality improvement efforts	4.15
Leadership is encouraged throughout the organisation	3.54
The organisation adds value to the community by its activities	3.32
Management ensure employees are well supported through times of change	3.19
Management encourages employees to take a strategic perspective	2.63

The means by which companies communicate their key quality values to employees was examined. The results show that 69% of the companies communicated their quality values verbally to their employees. Additionally, 53% communicated their quality values through the mission/vision statements and 53% also did this by means of the quality policies. Thirteen per cent of the companies used slogans to communicate quality value to their employees. A Cochran-Q test revealed that certain means of communicating quality values were used more frequently than others, $Q(3) = 46.39, p < 0.01$. To ascertain which of the methods differed significantly from one another, a set of orthogonal pairwise comparison were conducted. The procedures devised by Marasculio and McSweeney (1967) were invoked to undertake these comparisons. These procedures showed that company slogans were employed the least frequently. The remaining methods did not differ significantly from one another.

The approaches used by management to reinforce quality throughout the business were also investigated. The results showed that 63% of the companies achieve this through on-going training. Quality meetings were also used for this purpose by 45% of the businesses and a similar proportion achieved this goal by introducing a formal quality program. Forty-three per cent of the companies also indicated that they focused on the elimination of barriers to change to help in reinforcing quality throughout the business. A Cochran-Q test revealed that certain approaches were used more often than others, $Q(3) = 7.86, p < 0.05$. Specifically, on-going training was invoked more often than the other means.

Strategy, Policy and Planning Practices

Six practices relating to strategy, policy and planning were listed in the questionnaire and respondents were asked to indicate, on a 5-point scale (1 = very low and 5 = very high), the extent to which each of these was evident in their organisation. Table 3 shows the mean rank corresponding to each practice.

Highly ranked practices relate to the incorporation of business values in the policies and plans of the companies and the linking of quality objectives to business objectives. Both of these practices are vital to the successful operation of a business. The lowest ranked practice again relates to employees, specifically to the contribution of the employees to the development and communication of the organisation's values. Without this involvement, employees ownership may become an issue. The Friedman ANOVA shows that the practices listed in Table 3 are not observed to the same extent, $\chi^2(5) = 17.15, p < 0.01$. That is, "The organisation's values are evident in its policies and plans" and "Quality objectives are tied to business objectives" were manifested more often than "All employees contribute to the development and communication of the organisation's values". The remaining practices did not differ significantly from any of these items.

Table 3: Practices Relating to Strategy, Policy and Planning
(Practices that are observed prevalently received higher ranks)

Practice	Mean Rank
The organisation's values are evident in its policies and plans	3.98
Quality objectives tied to business objectives	3.92
Regular reviews to assess progress toward achieving objectives	3.53
Identification of key indicators to measure company performance	3.41
Allocation of resources to achieve objectives	3.40
All employees contribute to the development and communication of the organisation's values	2.75

Respondents were asked to specify the indicators they use to assess the business's planning process. The main key performance indicator used by 90% of the responding companies is the achievement of financial goals, i.e. profit. Other indicators commonly used by companies include customer retention (mentioned by 66% of the respondents), new business (59%) and sustainable business growth (57%). Staff turnover was mentioned by 18% of the companies as a performance indicator. The Cochran Q test revealed that the various indicators are not employed to the same extent, $Q(4) = 74.85, p < 0.01$. Pairwise comparisons showed that, apart from customer retention, achievement of financial goals were used significantly more frequently than the other indicators. In addition, staff turnover was used the least frequently.

The extent to which the owners/CEO, employees, customers, and suppliers were involved in planning was also investigated. Responses were provided on a 5-point scale where 1 = no input and 5 = sole input. Table 4 presents the mean rank corresponding to each of the four groups. As revealed by the Friedman ANOVA, the four groups were not involved to the same degree, $\chi^2(3) = 64.60, p < 0.01$. The owners/CEOs were appreciably more involved than the employees and customers who, in turn, were more involved than the suppliers. Interestingly, the employees were not significantly more involved than the customers.

The degree of consideration that the four groups received in the planning process was examined. Again responses were provided on a 5-point scale as indicated above. Table 5 presents the mean rank associated with the four groups and the Friedman ANOVA shows that the four groups were not considered to the same degree, $\chi^2(3) = 42.99, p < 0.01$. The owners were considered more extensively than the employees. The customers did not differ significantly from these two groups. However, the suppliers were considered to the least extent.

Table 4: Level of Involvement in Planning
(Higher ranks correspond to roles that were more involved in the planning process)

Stakeholder Group	Mean Rank
Owners/Chief Executive Officer	3.48
Employees	2.64
Customers	2.38
Suppliers	1.50

Table 5: Consideration in Planning
(Higher ranks correspond to roles that were considered more extensively in the planning process)

Stakeholder Group	Mean Rank
Owners/Chief Executive Officer	3.17
Customers	2.76
Employees	2.45
Suppliers	1.62

Information and Analysis Practices

Nine practices relating to information and analysis were listed in the questionnaire and respondents were asked to rate, on a 5-point scale (1 = very low and 5 = very high), the extent to which these were evident in their business. Table 6 presents the mean rank associated with each of these nine practices. The most highly observed practices relate to the collection and analysis of information on company performance and the company's important activities. The least observed practice again relates to employees, that is the presentation and communication of important data to employees. These practices were not observed to the same extent, $\chi^2(8) = 50.77, p < 0.01$. That is "Competitive and benchmarking data is used" was observed less frequently than the remaining practices shown in Table 6. These practices, however, did not differ significantly from each other.

Table 6: Practices Relating to Information and Analysis
(Practices that are manifested to a large extent received higher ranks)

Practice	Mean Rank
Company performance data is collected and analysed	6.09
We collect and analyse information on our important activities	5.82
Information allows us to control and improve our core processes, products, and services	5.74
Customer and performance data allows us to track performance	5.38
We have easy access to the information we need	4.87
We receive timely information	4.82
Important data is presented and communicated to employees	4.72
Information systems are continually evaluated and improved	4.53
Competitive and benchmarking data is used	3.05

People Management Practices

Respondents were asked to rate the extent to which eight practices associated with people were evident in their organisation. Responses were provided on a 5-point scale where 1 = very low and 5 = very high. Table 7 presents the mean rank pertaining to each of the eight practices. The most highly visible practices relate to employee empowerment ("People are encouraged to be fully involved in the business and reach their full potential" and "Employees are informed of issues important to them") whilst the least visible practice relate to employee satisfaction ("Employee satisfaction is regularly measured"). Without an

adequate measure of the level of employee satisfaction, management is unlikely to know if their efforts to empower employees have been successful.

Table 7: Practices Relating to People
(Practices that are observed to a large extent received higher ranks)

Practice	Mean Rank
People are encouraged to be fully involved in the business and reach their full potential	5.31
Employees are informed of issues important to them	5.24
Ongoing education and training for all employees is encouraged	4.79
Employees needs and contributions are considered in the overall planning process	4.75
All employees believe that quality is their responsibility	4.61
Management has empowered employees to achieve customer and organisational objectives	4.47
Reward and recognition systems support the company's quality and performance objectives	3.56
Employee satisfaction is regularly measured	3.27

As revealed by the Friedman ANOVA, these practices were not manifested to the same extent, $\chi^2 (7) = 38.79, p < 0.01$. Specifically, "People are encouraged to be fully involved in the business and reach their full potential", "Employees are informed of issues important to them" and "Ongoing education and training for all employees is encouraged" in Table 7 were observed more frequently than "Reward and recognition systems support the company's quality and performance objectives" and "Employee satisfaction is regularly measured". The remaining practices did not differ significantly from either of these two sets of items.

Respondents were asked to specify the means by which employees become involved in quality. The results revealed that 52% of the companies involved employees in quality circles, 39% involved employees in improvement teams, 26% of the companies had multi-functional teams and 10% of the companies involved their employees in providing quality training. These were not selected to the same extent, $Q(3) = 29.29, p < 0.01$. Pairwise comparisons revealed that quality training and improvement teams were selected more often than quality circles.

The extent to which various types of training contribute to the company's performance goals was also investigated. Responses were provided on a 5-point scale where 1 = most important and 5 = not at all important. Table 8 displays the mean rank associated with the four types of training. The impact of training differs significantly across the four types, $\chi^2 (3) = 59.46, p < 0.01$. On-the-job training was regarded as more vital than literacy training. Induction training and regular training did not differ significantly from each other.

Respondents were also asked to indicate how their organisation recognise and reward employees. The results reveal that 50% of the companies use bonus scheme, 31% provide recognition through the company newsletter/publication, 13% of the companies operate a gainsharing system and 8% provide additional holidays for their employees. Again analysis showed that these were not utilised to the same extent, $Q(3) = 39.13, p < 0.01$. Pairwise comparisons revealed that bonus schemes were used significantly more than gainsharing and holidays.

Table 8: Types of Training
(Lower ranks correspond to more significant impacts)

Type of Training	Mean Rank
On the job training	1.57
Induction training	2.34
Regular training	2.60
Literacy training	3.50

Customer Focus Practices

Seven practices relating to customer focus were listed in the questionnaire and respondents were asked to rate, on a 5-point scale (1 = very low and 5 = very high), the extent to which these were evident in their business. Table 9 presents the mean rank associated with each of these seven practices. "The business is customer focussed" is ranked the highest and "The company regularly measures customer satisfaction" is ranked the lowest. The practices listed in Table 9 were not observed to the same extent, $\chi^2 (7) = 50.12$, $p < 0.01$. "The business is customer focussed" was more evident than all of the remaining practices, apart from "Complaints and problems are resolved promptly and efficiently" which did not differ significantly from any of the other practices.

Table 9: Practices Relating to Customer Focus
(Practices that are observed to a large extent received higher ranks)

Practice	Mean Rank
The business is customer focussed	5.31
Complaints and problems are resolved promptly and efficiently	4.82
Customer needs and expectations now and in the future are known	4.07
Customer requirements are communicated throughout the business	3.77
Customer relationships are evaluated and improved	3.69
Future expectations of customer and future requirements are planned for	3.29
The company regularly measure customer satisfaction	3.05

Respondents were also asked to indicate the most important factors when building relationships with customers from a list provided in the questionnaire. Communication was identified by 85% of the respondents, reliability by 82%, responsiveness by 76%, prompt resolution of complaints by 65% and information by 45% of the respondents. Analysis showed that these alternatives were not selected to the same degree, $Q(4) = 37.69$, $p < 0.01$. Pairwise comparisons revealed that information was selected the least often.

Quality of Processes, Product and Service Practices

Table 10 presents the mean rank for the seven practices relating to quality of process, product and service. Responses were given on a 5-point scale where 1 = very low and 5 = very high. Methods established to maintain and improve the quality of products and services is the most highly observed practice while supplier involvement is the least observed practice. All the practices shown in Table 10 were not evident to

the same extent, $\chi^2(6) = 26.40, p < 0.01$. Specifically, "We have established methods to maintain and improve the quality of our products and services", "Key functional personnel are involved in the design and development of new/improved products and services" and "We encourage a culture of innovation within the company" were observed more prevalently than "Suppliers work closely with us so that we can improve each others processes". The remaining items did not differ significantly from the other practices.

Table 10: Practices Relating to Quality of Process, Product and Service
(Practices that are observed to a large extent received higher ranks)

Practice	Mean Rank
We have established methods to maintain and improve the quality of our products and services	4.77
Key functional personnel are involved in the design and development of new/improved products or services	4.41
We encourage a culture of innovation within the company	4.22
We focus on prevention of problems before they happen	3.94
We have a framework for process management and improvement	3.91
All our processes are continuously improved	3.87
Suppliers work closely with use so that we can improve each others processes	2.88

Table 11: Practices Relating to Quality Assurance
(Percentage of Respondents)

	Implemented	Planned for	Not planned for
In-house Quality Standards	78	16	6
Third Party Quality Standard	43	32	25
Australian Quality Council's Business Growth Through Quality Program	27	5	68
Benchmarking	34	27	39

Table 11 shows the percentage of businesses that have implemented, planning to implement or have no plans to implement a number of different quality standards and programs. Clearly, in-house quality standards are used the most frequently, whereas external programs specifically aimed at small businesses (for example the Australian Quality Council's Business Growth Through Quality program) are used the least frequently. ISO9000 standards are also commonly being adopted by small businesses.

Business Performance Practices

Six practices relating to measuring business performance were listed in the questionnaire and respondents rated the extent to which these were evident in their business. Responses were given on a 5-point scale where 1 = very low and 5 = very high. Table 12 presents the mean rank associated with these practices. The most highly observed practices relate to the identification of key measures of performance and using the results to plan improvement. The least observed practices relate to benchmarking performance against competitors. Friedman ANOVA showed that these practices were not manifested to the same extent, $\chi^2(5) = 30.98, p < 0.01$. Specifically, "Key measures of company performance have been identified" and "Company performance results are used to plan improvements" were observed more prevalently than

“Overall company performance is measured against our competitors” and “Quality levels are measured against our competitors”.

Table 12: Practices Relating to Measuring Business Performance
(Practices that are evident to a large extent received higher ranks)

Practice	Mean Rank
Key measures of company performance have been identified	4.20
Company performance results are used to plan improvement	4.18
Results are related back to customer requirements	3.61
Company performance results are communicated throughout the company	3.30
Overall company performance is measured against our competitors	2.86
Quality levels are measured against our competitors	2.85

The Impact of Practices (Independent Variables) on Outcomes

As previously mentioned, the impact of each of the six independent variables (see Figure 2) was measured using five outcomes namely: cost of producing the product or service, quality of the product or service, flexibility of delivery, timeliness of delivery and productivity improvements. For each of the variables, respondents indicated the rate of impact on these outcomes using a 5-point scale where 5 corresponds to very high and 1 to very low.

Table 13 presents the mean rank corresponding to each outcome for each of the independent variables. To ascertain whether or not the various outcomes were influenced to the same extent, the data were subjected to a Friedman ANOVA. This procedure demonstrated that some of the outcomes were more affected than the other outcomes. A series of pairwise comparisons were also carried out.

Table 13: Mean Ranks of Outcomes

Outcome	Leadership	Strategy, Policy & Planning	Information & Analysis	People	Customer Focus	Quality of Process, Product Service
Quality of products or service	3.44	3.38	3.21	3.33	3.68	3.79
Timeliness of delivery	3.21	3.08	2.91	3.13	3.34	2.86
Productivity improvements	3.03	2.81	3.27	2.99	2.70	2.82
Cost of producing the product or service	2.72	2.85	2.99	2.74	2.04	2.92
Flexibility of delivery	2.61	2.88	2.56	2.81	3.24	2.61

Leadership; $\chi^2(4) = 10.76, p < 0.05$

Strategy, Policy and Planning, $\chi^2(4) = 5.10, p > 0.05$

Information and Analysis, $\chi^2(4) = 7.15, p > 0.05$

People, $\chi^2(4) = 5.27, p > 0.05$

Customer Focus, $\chi^2(4) = 37.22, p < 0.01$

Quality of Process, Product and Service, $\chi^2(4) = 17.88, p??$

The results show that:

- the influence of leadership practices was greater on quality of product or service relative to the influence on flexibility of delivery. The remaining outcomes did not differ significantly from either of these two outcomes in the case of leadership practices.
- the impact of strategy, policy and planning practices did not differ significantly across the various outcomes. That is, each outcome was effectively influenced to the same extent.
- the impact of information and analysis practices did not differ significantly across the various outcomes.
- the impact of people management practices did not differ significantly across the various outcomes.
- the influence of customer focus practices was greater on flexibility of delivery than on productivity improvements and cost of producing the product or service.
- the influence of quality of process, product and service practices was greater on the quality of the product or service than any other outcomes.

Impact of Quality Practices on Business Performance

Six measures of business performance were listed in the questionnaire and respondents indicated the rate of impact on each one using a 5-point scale where 5 corresponds to very high and 1 to very low. The mean rank corresponding to each performance measure is presented in Table 14. The results show that the practices and principles of quality management have had the highest impact on the overall competitiveness of the business and the least impact on exports. A Friedman ANOVA demonstrated that overall competitiveness was more influenced than employment levels, cash flow or exports. In addition, sales and market share were more affected than exports [$\chi^2(5) = 29.50, p < 0.01$]. No other differences attained significance.

Table 14: Impact of Quality Practices on Business Outcomes
(Outcomes that have been influenced appreciably received higher ranks)

Practice	Mean Rank
Overall competitiveness	4.35
Sales	3.92
Market share	3.85
Employment levels	3.30
Cash flow	3.29
Exports	2.29

CONCLUSION AND FUTURE RESEARCH

This paper has reported the results of analysis conducted on data collected from 62 small/medium-sized Australian companies. Specifically, it examined the relationship between quality management practices and performance. The questionnaire used for the study was based around the Australian Quality Awards framework. This research identified a number of significant relationships between TQM practices and organisational performance. For organisations concerned with quality rather than flexibility in delivery, the research determined that leadership practices were particularly important. As expected, a strong customer focus, quality system or good information management, provided greatest positive influence on the quality of outputs.

One of the other interesting findings of the research was that, contrary to the literature (with the important exceptions of Powell, 1995 and Forker, 1996), strategic planning, information and human resource management did not contribute to any one of the five organisational performance measures under consideration more than the others. The research determined that these practices had a beneficial impact on these performance measures, although their mean ranks varied between 2.56 and 3.38 in a range of 1 to 5 (most impact), which suggests that the level of benefit was intermediate.

Organisations concerned with the flexibility of delivery need to concentrate their resources on their customer focus programs, according to the research. This is a significant finding as few organisations are aware of the relationship between customer focus and delivery flexibility. One technique, which is becoming increasingly popular for introducing customer focus into supply flexibility, is the process of order expediting. This process, which is popular in the U.S., directly links orders for important customers to the delivery process.

Given the attention that quality and TQM programs have received over the past decade and their inherent cost to the organisation, it appears imperative that research into this very area be promoted, not only by researchers but also by organisations. Unless organisations can view TQM as a strategic tool and feel confident that, in the long term, its affect on business performance will be a positive one, organisations will continually find it difficult to compete in global markets that are becoming increasingly competitive.

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