ISO 9001: THE DRIVERS FOR INSTALLATION AND MAINTENANCE

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The drivers, installation, and maintenance of the ISO 9001 quality system standard among Australian and New Zealand organisations

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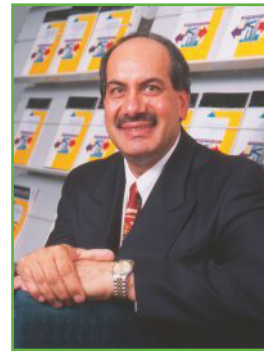
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1. EXECUTIVE SUMMARY

1.1 Introduction

This study was conducted by Monash University's Department of Management in the Faculty of Business and Economics, in collaboration with Joint Accreditation System of Australia and New Zealand (JAS-ANZ). The aim of this study was to investigate the perceptions of Australian and New Zealand businesses with respect to the drivers for the adoption of the ISO 9000 quality system standard and its installation and maintenance. Data for this study was collected by means of a questionnaire survey with 300 responses received from Australian businesses and 239 from New Zealand businesses.

1.2 Summary of Major Findings

The major findings from this study are:

(1)   New Zealand organisations have more experience in implementing the ISO 9001 standard than their Australian counterparts.

(2)   Australian organisations seem to receive more pressure from government than their New Zealand counterparts to implement the ISO 9001 standard.

(3)   Customers are the most influential stakeholders for organisations in both countries to certify to the ISO 9001 standard.

(4)   Organisations in both countries reported experiencing only few difficulties during the process of implementing the ISO 9001 standard.

(5)   The operations/production function within organisations which have received the most improvements from the adoption of the ISO 9001 standard.

(6)   Organisations in both countries are very satisfied with their adoption of the ISO 9001 standard.

2. INTRODUCTION

2.1 Background

The ISO 9000 series of quality standards was developed by the International Standards Organization (ISO) in 1987, and has since become the international quality standard. ISO 9001 actually combines three standards into one. ISO 9001, 9002 and 9003 were all combined into ISO 9001 and introduced in 2000 as ISO 9001:2000 standard. The new standard focuses on process management rather than just focussing on inspecting the finished product, as was the case with the earlier standards. "Design and development procedures are required only if a company does in fact engage in the creation of new products," according to ISO Quality Standards.

ISO 9001 standard describes the fundamentals and requirements of quality management systems. It does not attempt to measure the quality of the products or services produced by organisations, i.e. it makes no reference to achieving a certain objective or result. Instead, the standard establishes the need to systematize and to formalize the tasks undertaken by the organisation with the objective of producing products/services that meet customer demands. In other words, it is a management tool based on the systematization and formalization of tasks in order to obtain uniformity in the product and to conform to the specifications established by the customer (Anderson et al. 1999).

Since the release of the first revision in 1994, ISO 9001 has generated considerable research attention, with its merits well documented in the management literature. As well as being of interest to scholars, the quality management system has become deeply entrenched in practice, and over the last two decades there has been a steady increase in the number of countries that have adopted ISO 9001 as their national quality standard, as well as a continual increase in the number of organisations who certify to the standard, within these countries.

2.2 This study

This study aims to identify the drivers and motivations for implementing ISO 9001, the procedures adopted for installation and maintenance of this standard and the difficulties that companies encounter during the implementation and certification processes. Data for this study was collected from a large sample of Australian and New Zealand companies.

3. METHODOLOGY

3.1 Company selection criteria

Companies were selected for participation in this study from a JAS-ANZ database. This database lists all Australian and New Zealand companies that are certified to ISO 9001. From a total of over 10,000 companies listed in this database, 1,500 Australian and 1,050 New Zealand companies were randomly selected on the condition that their listing in the database included complete information relating to company's name, postal address as well as the contact person complete with name, phone number and email address. Upon selection, each company was mailed a questionnaire, via the named contact person, together with a covering letter explaining the purpose of the study and a reply-paid return envelope. If the individual in the organisation receiving the questionnaire was not the person in charge of quality management, he/she was requested to forward the questionnaire to the appropriate person.

3.2 Questionnaire

The questionnaire content was designed on the basis of a similar study conducted on behalf of JAS-ANZ (published in 2006) with additional sections included on auditing and certification processes. The content therefore covers most areas, which scholars and practitioners believe are relevant to ISO 9001 studies.

3.3 Company profiles

This section presents details of the sample used in the study including the number of companies surveyed, the industry sectors sampled, as well as the size, and strategic position of the respondent companies.

3.3.1 Sample size

In total, 300 questionnaires were returned from Australian firms (20% responses rate) and 239 questionnaires were returned from New Zealand firms (23% response rate). Targeted respondents to the questionnaire were managers within each organisation who had knowledge and responsibility for the implementation and maintenance of the company's quality management system. Table 1 presents the organisational position of the respondents. As can be seen, the majority of respondents (two-third in New Zealand and three-quarters in Australia) were quality managers or general managers/managing directors, thus creating an appropriate sample for the objectives/requirements of this study.

Table 1 Sample breakdown in terms of respondents' position within the company

Position of the respondents	New Zealand (%)	Australia (%)
Quality Manager	48	57
Production / Operations Manager	7	4
General Manager / Managing Director	17	16
Owner	11	10
Others	17	13
Total	100	100

3.3.2 Industry sectors

As indicated in Table 2 the sample represented a number of industry sectors with manufacturing and non-manufacturing accounting for approximately 50% each. The manufacturing category captures most sectors under the Australian New Zealand Standard Industry Classification (ANZIC) code, including food, textile, wood, printing, mineral, metal, and machinery. The non-manufacturing category includes a range of service sectors, including health care and community services, education and training, professional services, environment related, government and trade and construction.

Table 2 Sample Classified by Industry Sector

Industry sectors	New Zealand (%)	Australia (%)
Agriculture, Forestry and fishing	6.3	1.4
Mining	2.5	2.9
Manufacturing	41.6	29.7
Electricity, Gas, Water and Waste Services	3.4	1.4
Construction	8.0	10.9
Wholesale Trade	2.5	6.5
Transport, Postal and Warehousing	2.1	3.3
Information Media and telecommunications	1.7	2.2
Financial and Insurance services	0.4	-
Rental, Hiring and Real Estate Services	-	2.9
Professional, Scientific and Technical Services	16.4	12.7
Public Administration and safety	3.8	4.3
Education and Training	.4	3.3
Health Care and Social Assistance	4.6	7.6
Arts and Recreation Services	0.4	0.4
Other Services	1.3	1.4
Missing	4.6	9.1
Total	100.0	100.0

3.3.3 Organisational Size

In terms of organisational size (as presented in Table 3), 70% of the Australian companies and 72% of New Zealand companies have less than 100 employees. 11% of both Australian and New Zealand companies have between 100 and 199 employees. 7% of the Australian companies employed 200 to 499, while 8% of New Zealand businesses employed this number of workers. 9% of Australian and 6% of New Zealand companies have more than 500 employees. 2% of both Australian and New Zealand samples did not specify the number of their employees.

Table 3 Organisational size based on number of employees

Organisational size	New Zealand (%)	Australia (%)
Less than 19	22	6
20 to 49	24	22
50 to 99	26	42
100 to 199	11	11
200 to 499	8	7
500 to 999	3	4
1000 or more	3	5
Missing	2	2
Total	100	100

4. KEY FINDINGS

This section presents the results of the current study. All results are presented graphically, with each graph depicting the mean scores.

4.1 Period of ISO 9000 certification

Figure 1 shows the length of time (in years) that companies in both countries have maintained their certification to the ISO 9000 standard. The results suggest that New Zealand companies, on average, have had more experience in implementing ISO 9001 than Australian companies. Two-thirds (66%) of Australian companies and 38% of New Zealand companies have had ISO certification for 10 years or less. Just over one-quarter (26%) of Australian companies were certified between 11 and 15 years ago and 6% have been certified for more than 15 years. While in New Zealand, 30% were certified between 11 and 15 years ago and 17% have been certified for more than 15 years.
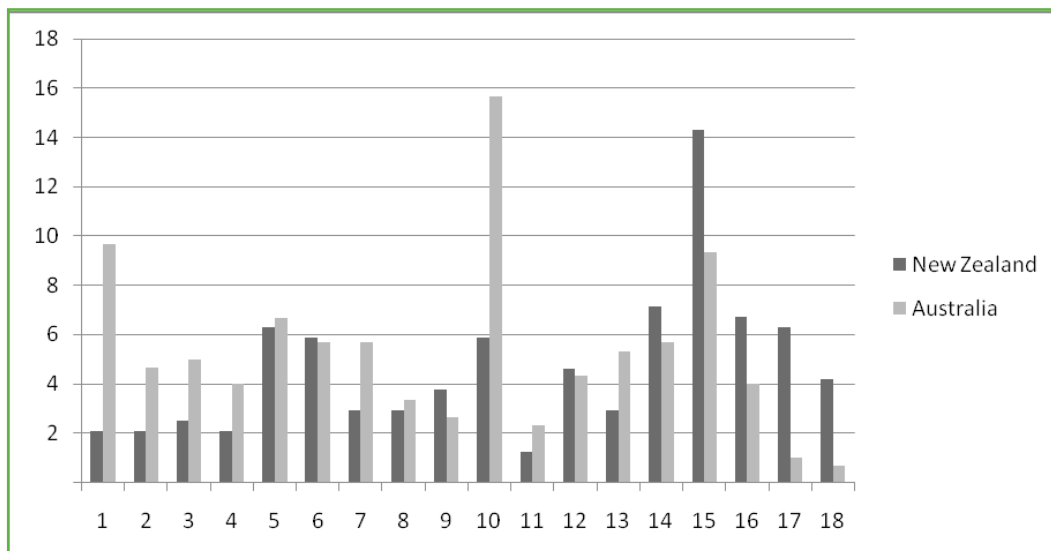

Figure 1 Years company have been certified to ISO 9001

4.2 Reasons for implementing ISO 9001

The questionnaire listed a number of statements relating to the motivatives for implementing the ISO 9001 standard and respondents were asked to indicate their agreement for each one on a five-point scale where 1= 'strongly disagree', 3= 'neutral' and 5= 'strongly agree'. The result is presented in Figure 2.

Common perceptions distinguish between two major motivations for seeking ISO 9001 certification, that is, those that are internally-oriented (derived from the desire to see the company benefit internally via the improvement of quality performance etc.) and those that are externally oriented (i.e. meet customers' requirements etc.). Thus, the items included to assess this dimension of quality management cover both internal and external motivations (Prajogo 2011).
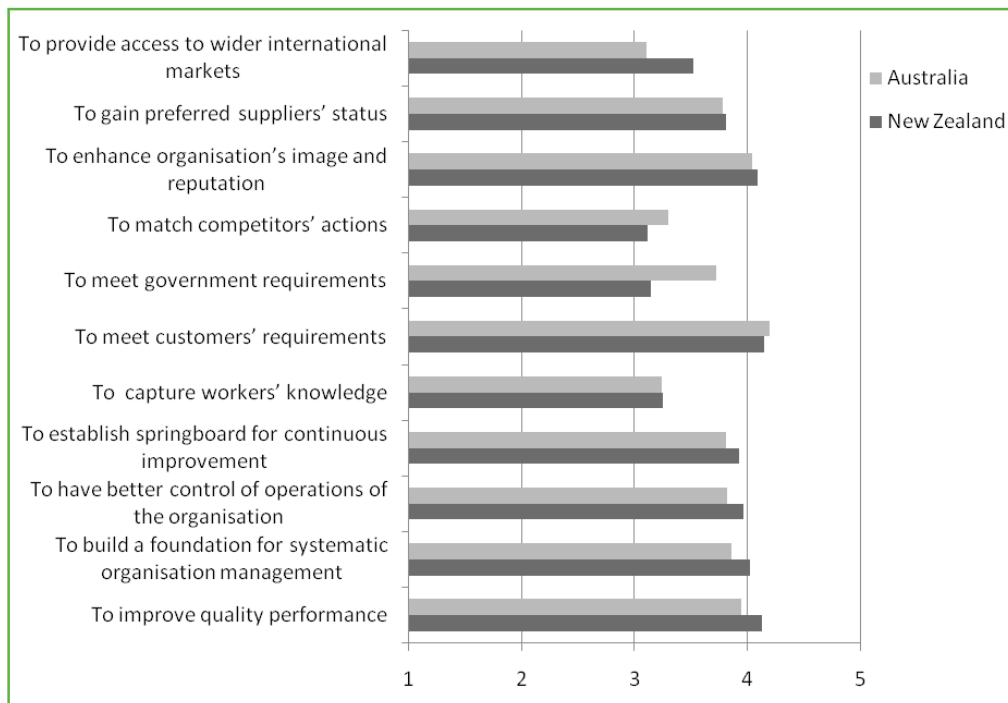

Figure 2 Primary motives for implementing ISO 9001

In general, there is no significant difference in terms of the reasons or motivations of firms in seeking ISO 9001 certification in Australia and New Zealand. Only two reasons seem to be relatively different between the two countries. Australian firms seem to receive more pressure from government than their New Zealand counterparts. On the other hand, New Zealand firms have a stronger push for certification to access international markets. This is possibly due to the fact that New Zealand firms have a relatively smaller domestic market than Australian firms. The major reasons identified are consistent between the two countries, namely to meet customers' requirements, to enhance a firm's reputation, and to improve quality performance. Overall, there is a balance between external and internal reasons for certification which are encouraging compared to the earlier study conducted in 2006 (Prajogo and Sohal 2006) on ISO 9001 adoption where external reasons appear to be stronger than the internal ones.

4.3 Stakeholders

Respondents were asked indicate on a scale of 1 to 5 the extent to which stakeholders had influenced their decision to be certified to the ISO 9001 standard, where 1=Not at all, 3=To some extent and 5=Very large extent. The result is presented in Figure 3. The most important stakeholder for both Australian and New Zealand companies for their decision to adopt ISO 9001 are customers. To confirm the results from the previous section, government has had more impact on Australian companies to implement ISO 9001 in comparison with New Zealand companies. On the other hand, shareholders and parent companies have a stronger impact on New Zealand companies to implement ISO 9001 than government.
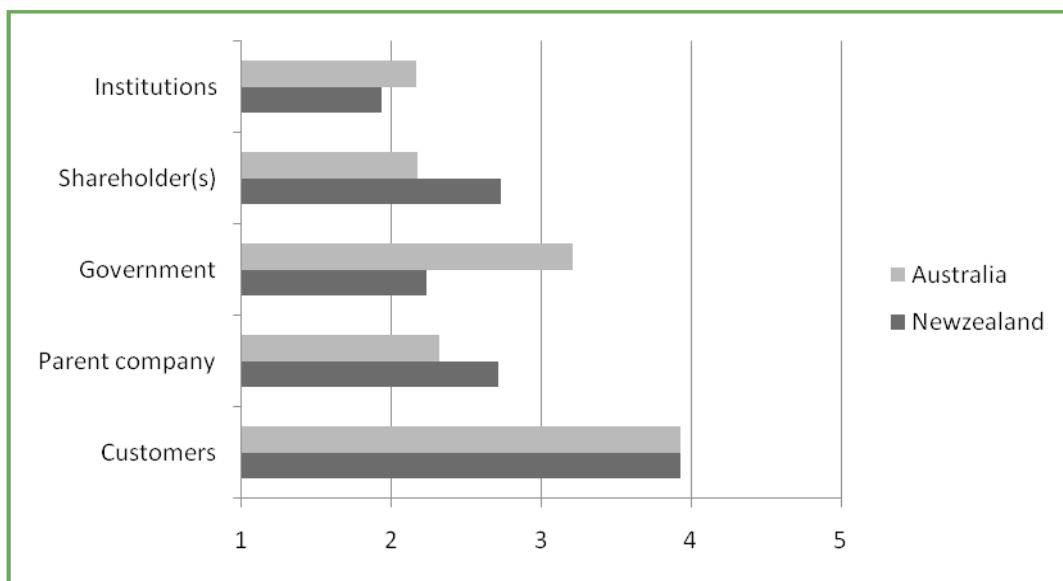

Figure 3 Stakeholders' Influence on ISO 9901 Certification

4.4 Approaches to ISO 9001 implementation

Statements relating to six key practices in implementing ISO 9001 were listed in the questionnaire and respondents were asked to state their agreement for each one on a scale of 1 to 5 where 1=Strongly disagree, 3=Neutral and 5=Strongly agree. The result is presented in Figure 4. Assigning a particular staff member (or department), involving senior management, providing sufficient resources to support the implementation process show the highest relative scores for both Australia and New Zealand. Senior management leadership received a high score (above 4 in both countries) that shows companies are aware of the importance of top management involvement for the success of the implementation process. In general, there is no significant difference in the implementation processes between the two countries. Documenting quality policy and procedures, providing training on quality management concepts to all employees and engaging experienced consultants are other implementation processes that are identified (with mean score larger than 3) as important in both countries.
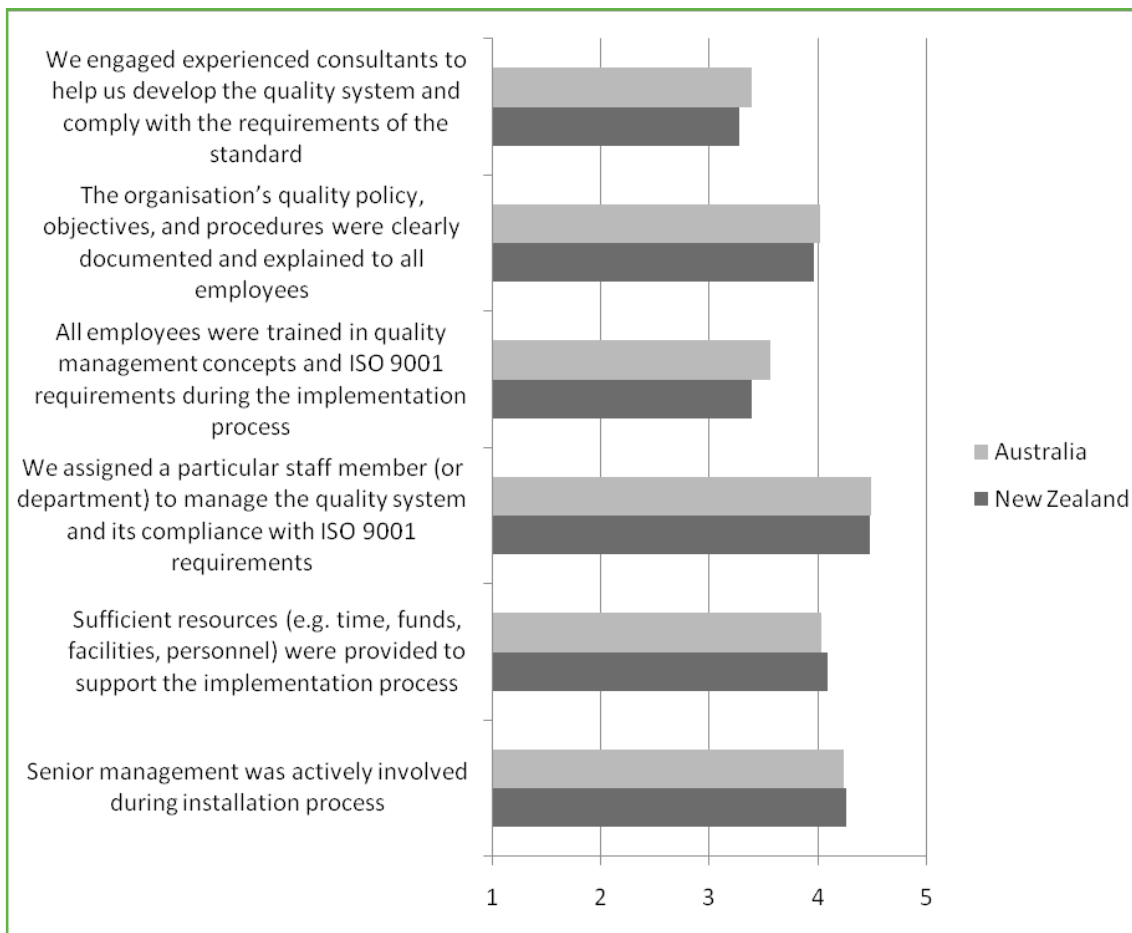

Figure 4 Approaches in Implementing ISO 9001

4.5 Maintenance of ISO 9001 certification

Respondents were asked to indicate to what extent a variety of processes were being applied by their organisation for the maintenance of ISO 9001 certification. As for earlier questions, these were presented as statements and respondents were asked to indicate their agreement to each one on a scale of 1 to 5, where 1=Strongly disagree, 3=Neutral and 5=Strongly agree. The result is presented in Figure 5. Approaches to maintaining the ISO 9001 standard are very similar in Australia and New Zealand. The three practices which show highest scores are documenting quality policy and procedures, maintaining the compliance of operations to the documented procedures, and conducting regular internal quality audits. On the other hand, both Australian and New Zealand firms have yet to use the ISO 9001 standard for further quality improvement initiatives beyond its basic requirements or aligning with other standards. In general, the results suggest that firms maintain their ISO 9001 certification by meeting the basic (or minimum) requirements of the quality system standard, and have yet to integrate the quality system in a broader initiative.
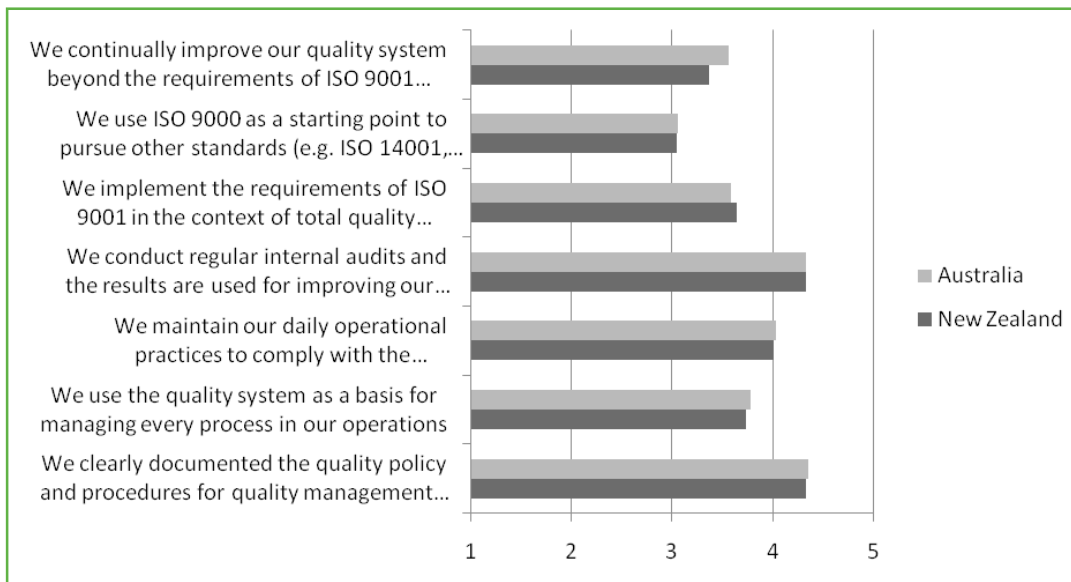

Figure 5 Approaches to maintaining ISO 9001 certification

4.6 Difficulties in relation to ISO 9001 certification

To assess the difficulties encountered by firms in implementing ISO 9001, respondents were asked to rate the level of difficulty experienced in relation to 11 implementation elements. Again, responses were recorded on a five-point scale, where 1= minimal, 3= moderate, and 5= major. The result is presented in Figure 6.

In both countries, the mean level of difficulty for most items is identified as 'moderate' (score of around 3), indicating that companies do not encounter major problems in relation to adopting the ISO 9001 standard. The most challenging issues are managing the volume of paper generated, maintaining and updating documents, providing adequate resources and handling time consuming procedures. On the other hand, companies have minimal difficulties in dealing with consultants and auditors. Also, there is no evidence of significant resistance to change by managers and employees in either country. This suggests that employees from different levels within the organisations understand the importance of implementing ISO 9001 and accept changes that it brings.

Overall, there seems to be a reduction in the level of difficulties and challenges faced by the sampled firms compared to the results of the earlier survey (Prajogo and Sohal, 2006). This indicates the improved general understanding of firms in implementing and maintaining ISO 9000 quality systems in their organisations.
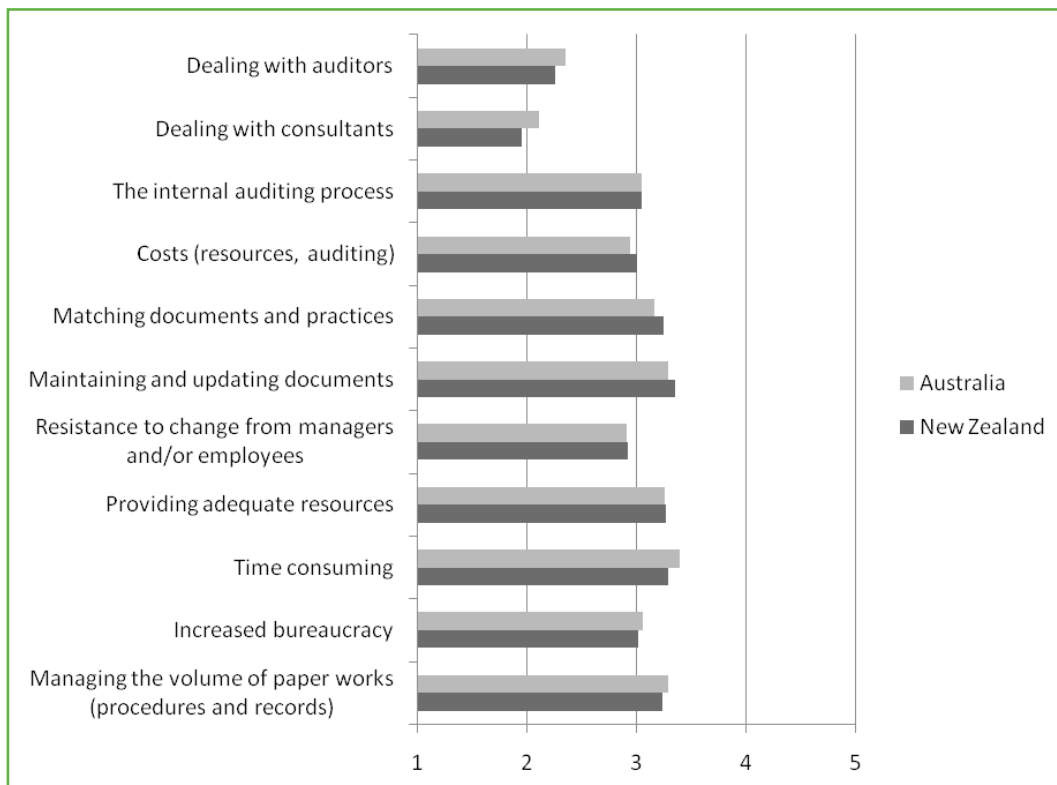

Figure 6 Challenges and difficulties relating to implementing ISO 9001

4.7 Areas impacted by ISO 9001 certification

The questionnaire also assessed the extent to which implementation of the ISO 9001 standard impacted on seven key functional areas, namely, operations or production, procurement or purchasing, sales and marketing, logistics and distribution, research and development, human resources or personal management, and information systems. Respondents were asked to indicate their response on a five-point scale, where 1 = 'Not at All, 3 = 'To some extent' and 5 = 'To a very large extent'. The result is presented in Figure 7.

All the seven areas were impacted considerably by ISO 9001. Operation or production is the most affected function (with a score of around 4 in both countries). The other six functional areas are impacted by ISO 9001 similarly in both countries, with a score of around 3.5. The results indicate that the application of quality management system is still primarily focussed within the production / operations area.
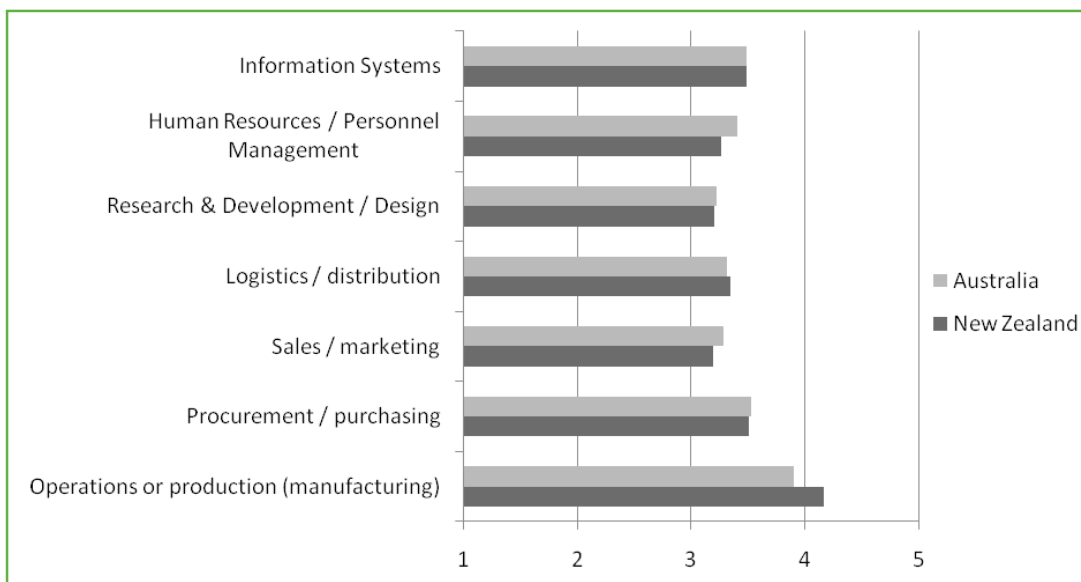

Figure 7 Functions that are affected by ISO 9001

4.8 Alignment of quality system and business strategy

Five statements examining the alignment between the quality management system and their organisation's policy/strategy were included in the questionnaire. For each statement, respondents were asked to indicate their agreement on a five-point scale, where 1=Strongly disagree, 3=Neutral and 5=Strongly agree. The results are presented in Figure 8.

Generally, the quality system is well aligned with the business strategy, with all items scoring close to 4 in both Australia and New Zealand. Quality is one of the strategic issues that senior management does pay more attention to and also take an active role in managing the quality system. The results indicate that managers understand the importance of quality for their organisations; therefore, the quality system receives a great deal of attention in business policy. Furthermore, the results suggest that quality is still upheld as a key strategy to achieve competitive advantage among certified firms.

Figure 8 Alignment of quality system and business strategy

4.9 Impact of ISO 9001 Implementation on Operational Performance

The survey also assessed the extent to which implementation of ISO 9001 impacted on nine different operational performance measures, including documentation of key processes, efficiency and productivity, and inspection from customers. The impact was measured by the degree to which respondents agreed with the statements listed in the questionnaire. Responses were provided on a five-point scale, where 1=strongly agree, 3=neutral and 5=strongly agree. The results are presented in Figure 9.

There is no significant difference between New Zealand and Australian companies regarding the impacts of ISO9001 on their operational performance. The strong benefits are mainly concerned with internal operations or processes which are aligned with the core of ISO 9001, including documentation of key processes, effectiveness and consistency of the operating procedures and mechanisms for identifying and handling problems. The other areas appear to be less impacted; indicating that the effect of ISO 9001 has not been as strong. These include improving product performance, improving efficiency and productivity, reducing the number of defects or reworks and customers' complaints and warranty costs, with the last one showing the least improvement. Overall, the benefits of ISO 9001 certification are still confined to internal operations in terms of standardising and controlling the processes.

Figure 9 Impact of ISO 9001 Implementation on Operational Performance

4.10 Impact of ISO 9001 Implementation on Business Performance

Figure 10 shows the extent to which improvements to business performance have resulted from the implementation of the ISO 9001 standard. Respondents ranked the listed statements on a five-point scale, where 1=strongly disagree that this improvement applied to their organisation, 3=neutral and 5=strongly agree that this improvement applied to their organisation.

Implementing ISO 9001 improves internal and external business performance. Externally, ISO 9001 enhance the image of companies for their customers and to provide them with preferred supplier status. This result is indicative of the marketing value of ISO 9001 certification. Internally, ISO 9001 improves managerial policies and procedures and enhances knowledge sharing and the organisational culture for learning.

Improved financial performance received the lowest rating (around 3 in both countries). Also, companies indicated that ISO 9001 did not significantly improve their sales or market share and did not help them significantly to capture a wider customer base or expand their markets. Internally, it was reported that there was no significant improvement in product design processes or supplier selection processes. This result is interesting because certified firms, on the one hand, expect to be selected as preferred suppliers by their customers; but, on the other hand, they seem not to be imposing similar requirements to their suppliers.
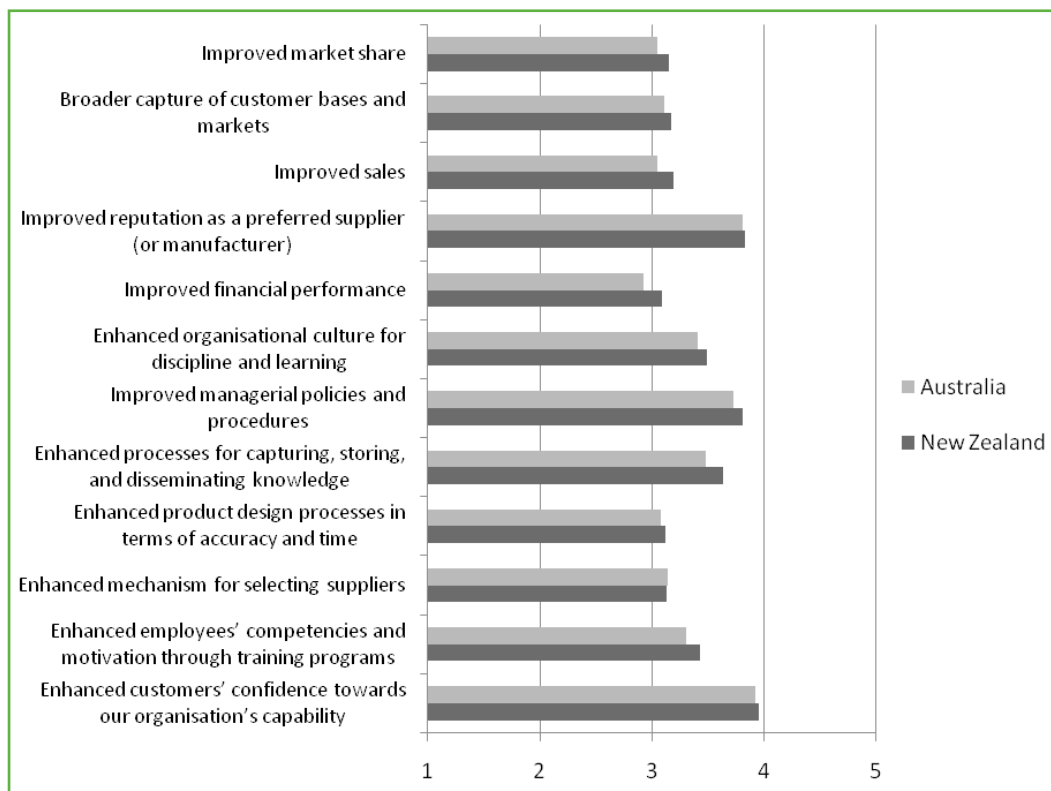

Figure 10 Impact of ISO 9000 on business performance

4.11 Certification to ISO 9001 by Customers, Suppliers and Competitors

Figure 11 shows responses to four statements with regards to customers, suppliers and competitors. Respondents indicated their level of agreement to each one of these on a five-point scale, where 1=strongly disagree, 3=neutral and 5=strongly agree.

Findings for both countries indicate a somewhat neutral position with respect to all four statements. Responding organisations understand that their customers put "just fair" value on ISO 9001 certification, meaning that they are not totally relying on certification to win customers. It is interesting to note that the majority of respondents' customers and suppliers are not certified to the same standard. Furthermore, not all their competitors have ISO 9001 certification. These findings indicate that the adoption of the ISO 9001 standard is still not widespread in Australia and New Zealand and hence many organisations are missing the opportunity to gain benefits from the implementation of this standard.
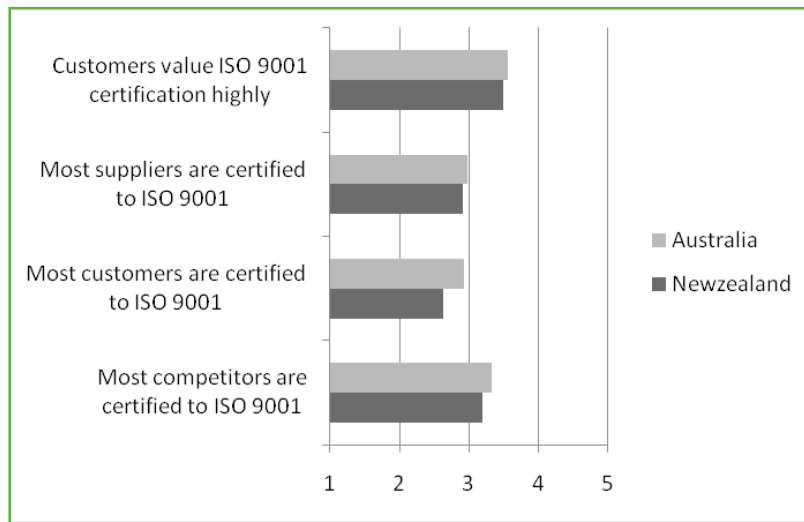

Figure 11 Value of ISO 9001 to Customers, Suppliers and Competitors

4.12 Satisfaction with ISO 9001 certification

Five statements were presented in the questionnaire to assess overall satisfaction with the ISO 9001 standard. Respondents indicated their level of agreement to each statement on a five-point scale, where 1=strongly disagree, 3=neutral and 5=strongly agree. The result is presented in Figure 12.
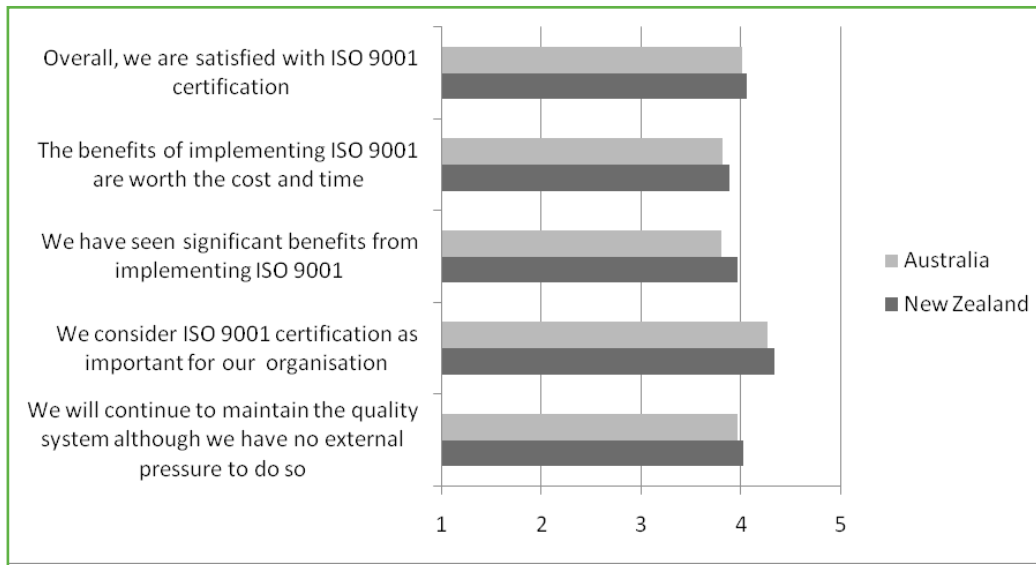

Figure 12 Overall satisfaction with ISO 9001 certification

Overall, Australian and New Zealand companies are very satisfied with ISO 9001 as suggested by the mean score of around 4 in both countries. Respondents commonly perceive that ISO 9001 is important for their organisations and they indicated that they will continue to maintain the quality system even if there is no external pressure to do so. Notwithstanding a number of issues motivating firms to maintain certification, the overall result indicates that certified firms are satisfied with adopting the ISO 9001 quality system standard and intend to continue with certification

5. CONCLUSIONS

In conclusion, there is no significant difference between Australian and New Zealand companies in the implementation of the ISO 9001 standard. But it appears from the respondents that the Australian government(s) put more pressure on companies to adopt ISO 9001 than the New Zealand government. Companies in both countries do not experience very significant difficulties in implementing ISO 9001. Furthermore, there is a strong alignment between ISO 9001 and business strategies in both countries. ISO 9001 can also be said to enhance operational and business performance to a large extent. In both countries, the areas most improved by ISO 9001 are operations and production. Companies assign a particular staff member or department for the ISO 9001 implementation process, internal audits are conducted, and policies and procedures are documented for maintaining the ISO 9001 standard. In general, Australian and New Zealand firms are very satisfied with their adoption of the ISO 9001 standard and indicated that they will maintain the standard even when there is no external pressure.

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