

# **Global Survey on ISO 9000 and ISO 14000: Summary of Findings**

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## **Executive Summary**

We would like to thank you very much for taking the time to complete the survey we sent to you in Winter 2001 regarding your experiences with ISO 9000 and/or ISO 14000 certification. In this report, we outline the main findings we obtained from the survey, combining data from the US with data from several other countries: Canada, Taiwan, Hong Kong, Australia/New Zealand, France and Sweden. Its global character makes this survey unique.

We first briefly review the history of how ISO 9000 and 14000 evolved worldwide. We then describe the sample of respondents in more detail, summarizing both the global sample and the US sample. We then highlight several of the key findings from the survey, and how these findings are similar or differ across countries and/or across industries. We first focus on main initiators of the ISO 9000 and ISO 14000 certifications. We then highlight reasons for certification, such as desire to improve quality, corporate image, market share, etc. Next, we report what proportion of the respondents' competitors are currently certified to ISO 9000 and/or

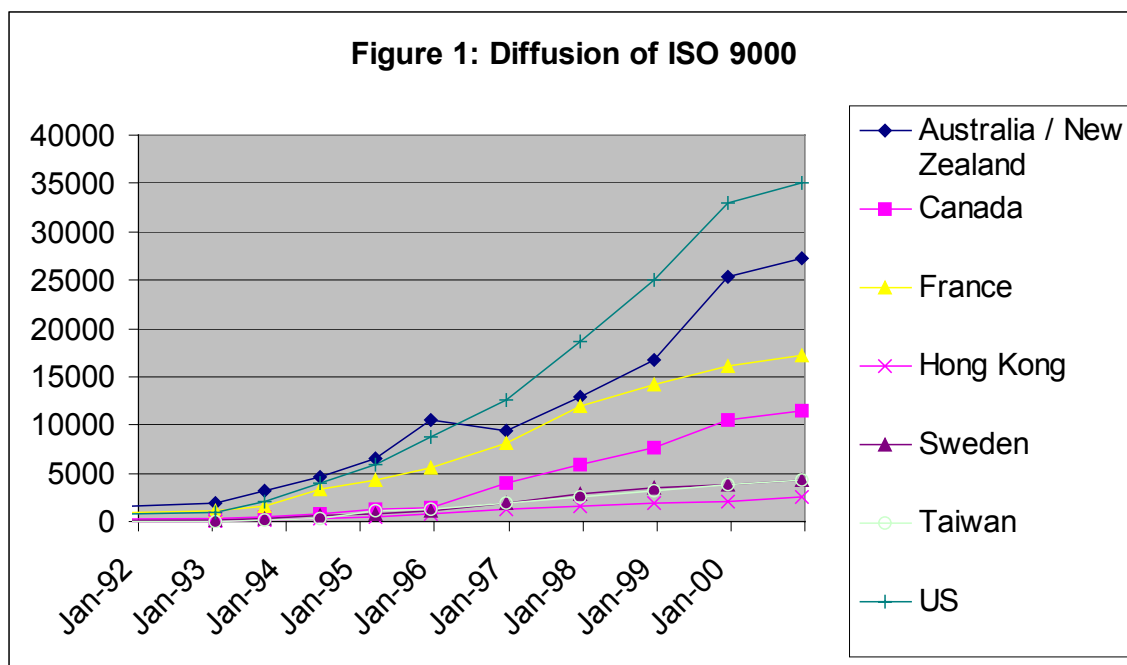
14000. We also explore how critical ISO 9000 and/or ISO 14000 certification was to the respondents' companies' continued success.

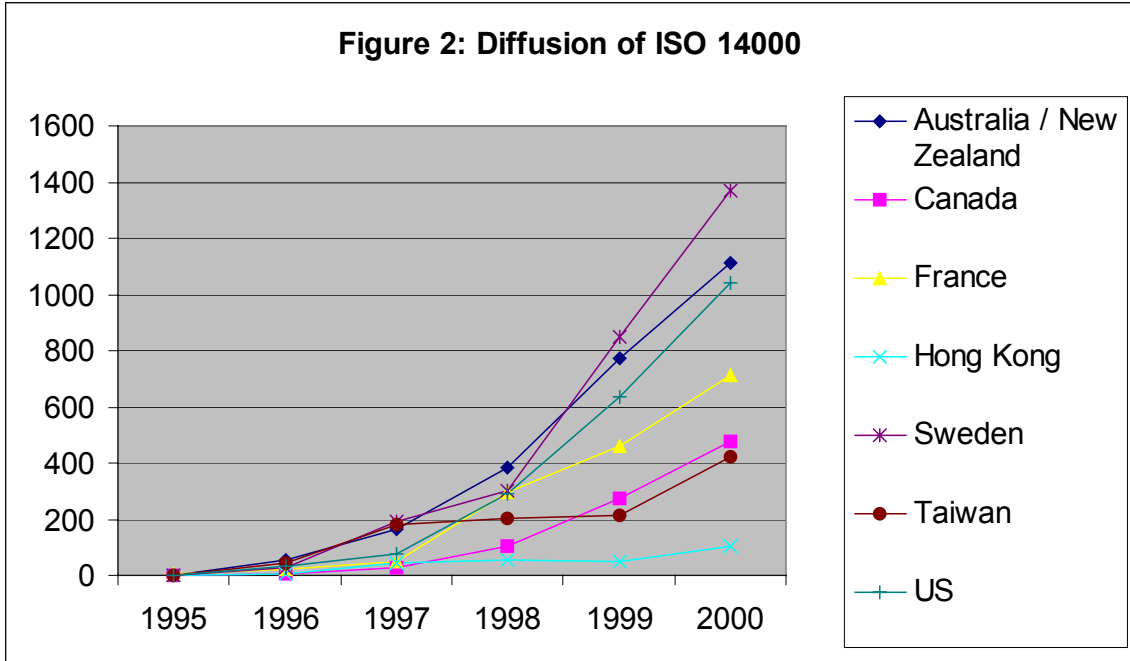
We report the proportion of the workforce trained during ISO 9000 and/or ISO 14000 certification at the respondents' companies. We then examine main issues in the implementation of ISO 9000 and 14000 certification, such as documentation, capital investment, implementing procedures for corrective action, etc. We also analyze to what extent respondents require their key suppliers to be ISO 9000 or 14000 certified. And finally, we investigate what benefits respondents derived from becoming ISO 9000/14000 certified, such as cost reductions, quality improvements (or improved environmental performance), improved market share, etc. We summarize our findings in the final section.

### **Global Diffusion of ISO 9000 and ISO 14000 Certification**

The fast evolution of these two management standard systems worldwide, from virtually unknown entities in the early 1990s, to well established and often required management practices, represents but another facet of the increasingly global marketplace many firms operate in. Current fast communication and openness enable this dramatically rapid diffusion of management practices. Over 400,000 firms in over 150 countries have adopted ISO 9000 since it was introduced in 1986. Its successor, ISO 14000, was introduced in 1996 and has already been adopted by over 30,000 firms in over 100 countries.

ISO 9000 was initially adopted by firms in Europe and in countries with close ties to the United Kingdom, such as Australia, New Zealand and Hong Kong (as ISO 9000 was partly based on an earlier British standard). Firms in the US followed suit, starting from the early 1990s, with firms in Japan, Korea and Taiwan adopting later. As a consequence of the ISO 9000 experience, ISO 14000 has followed a different path; in particular, firms in Japan were among the first adopters of ISO 14000.



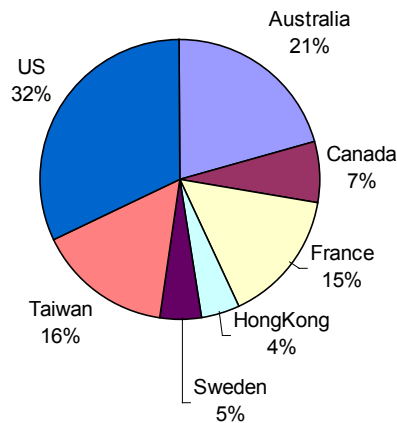


*Note:* the data used in these figures was obtained from “The ISO Survey of ISO 9000 and ISO 14000 Certificates (Tenth Cycle: up to and including 31 December 2000)”.

**Profile of Global Survey Sample**

Figure 3 summarizes the profile of respondents included in this report. The survey was administered in approximately 15 countries worldwide. 2913 responses from 7 countries are included in this analysis. Table 1 summarizes the number of responses and response rates by country.

**Figure 3: Breakdown of sample by country**

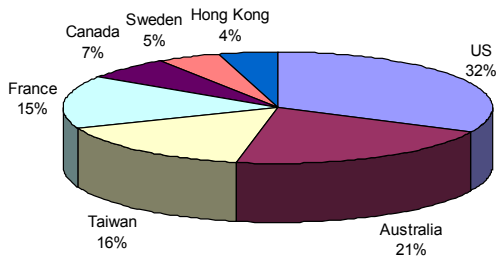


**Table 1. Response rates by country**

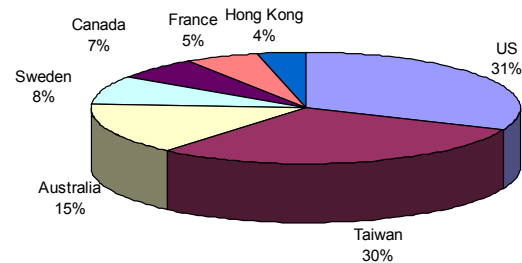
<i>Country</i>	<i>Questionnaires mailed</i>	<i>Usable responses received</i>	<i>Response rate</i>	<i>ISO 9000</i>	<i>ISO 14000</i>
Australia/New Zealand	3000	611	20.4%	611	118
Canada	561	198	35.3%	198	52
France	2000	445	22.3%	445	43
Hong Kong	1200	131	10.9%	131	29
Sweden	268	135	50.4%	135	66
Taiwan	2142	455	21.2%	455	235
US	5000	939	18.8%	938	248
<b>Total</b>	<b>14171</b>	<b>2914</b>	<b>20.6%</b>	<b>2913</b>	<b>791</b>

Of the total number of responses, 2796 firms have ISO 9000 certification and 790 have ISO 14000 certification. Figure 4 shows the breakdown of ISO 9000 certified companies and ISO 14000 certified companies by country.

**Figure 4a: Breakdown of ISO 9000 certified respondents by country**



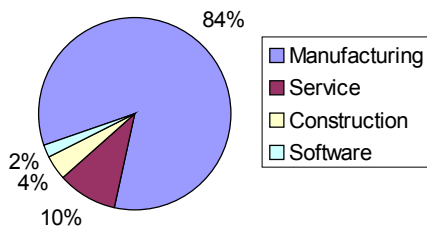
**Figure 4b: Breakdown of ISO 14000 certified respondents by country**



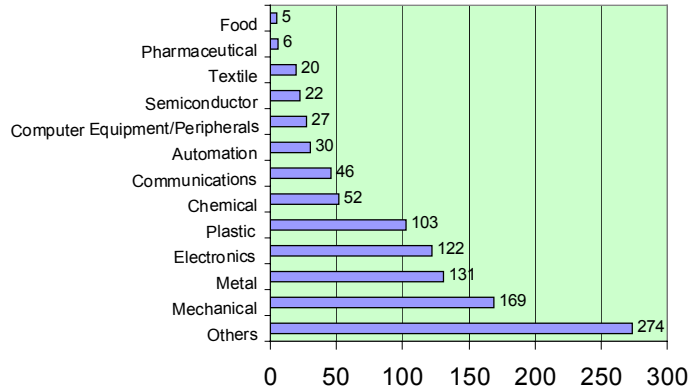
### Profile of US Survey Sample

In the US, 939 firms responded to the survey, representing a response rate of 18.8%. The average respondent in the US had 90 employees at the site where the survey was completed, and 800 employees worldwide, as well as an average of US \$ 303 million in sales at the site, and an average of US \$ 4,416 million in sales worldwide.

**Figure 5a: Breakdown of US respondents by type**



**Figure 5b: US respondents by activity**

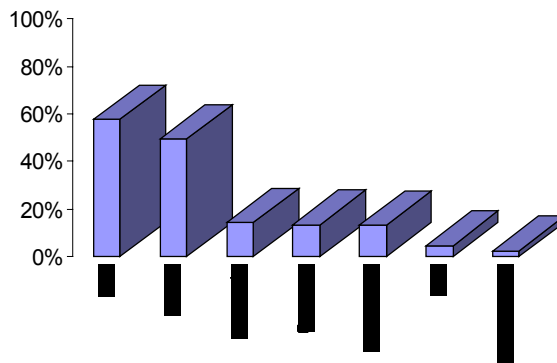


Most of the respondents in the US classified themselves as manufacturing firms. The largest activity category within manufacturing was mechanical, with 169 responses.

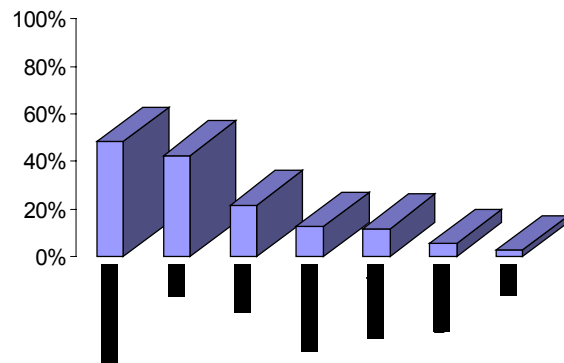
**Initiators of Main Drive for ISO 9000 and ISO 14000 Certification**

In the survey, we asked which group within your organization initiated the main drive for certification. The full question is included in the Appendix (question 10). The responses for ISO 9000 and ISO 14000 are shown in Figures 6a and 6b for the global sample and Figures 7a and 7b, broken down by country.

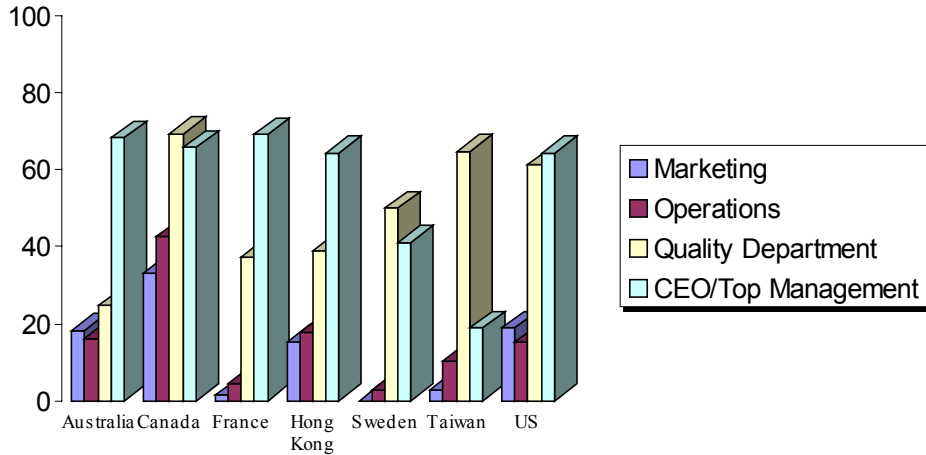
**Figure 6a: Main Initiators of ISO 9000**



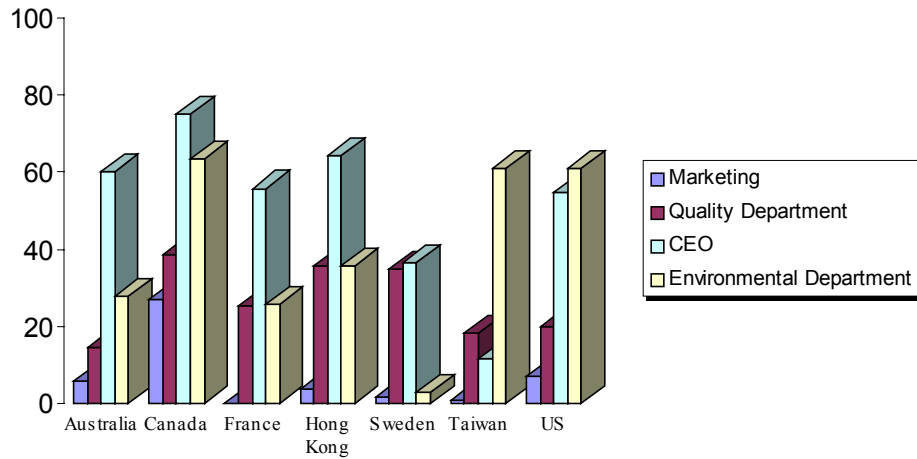
**Figure 6b: Main Initiators of ISO 14000 Certification**



**Figure 7a: Main Initiators of ISO 9000 Certification**



**Figure 7b: Main Initiators of ISO 14000 Certification**



As expected, the drive for ISO 9000 certification came primarily from either top management or the quality department in all countries. Similarly for ISO 14000, the key initiators were CEOs and environmental departments, though the quality department was not infrequently involved due to their familiarity with ISO 9000.

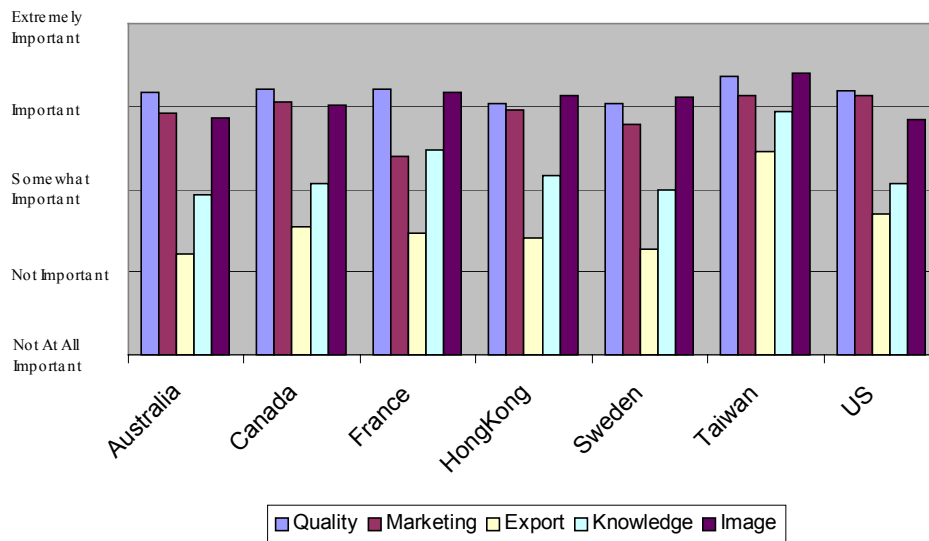
This picture is largely similar when broken down by country, except for a few notable differences. In particular, CEOs were clearly the main initiators in Australia, France and Hong Kong, while in Taiwan, the quality and environmental departments played a much bigger role. (The low number of environmental departments initiating ISO 14000 in Sweden is most likely a result of the fact that the survey was sent only to ISO 9000 certified firms in Sweden.) It is interesting to note that marketing departments played a rather insignificant role in initiating certification, despite the fact that gaining marketing advantage is often quoted as a benefit of ISO 9000 or ISO 14000 certification.

In the US, as in the other countries, the main initiators for ISO 9000 were CEOs, closely followed by quality departments. Marketing and operations played relatively small roles. In the US, the main initiators for ISO 14000 certification were environmental departments and CEOs. Quality and marketing departments again played marginal roles.

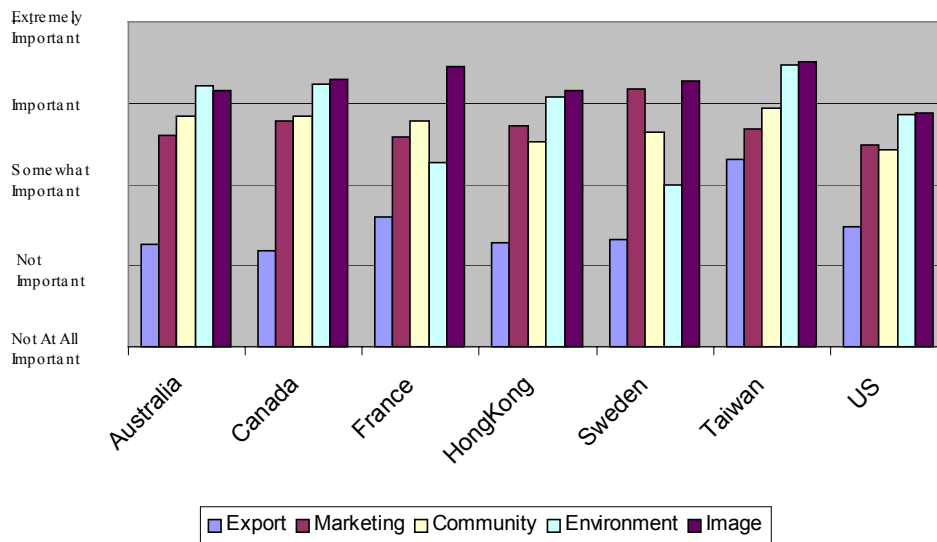
**Reasons for Seeking ISO 9000 and ISO 14000 Certification**

In question 9b in the survey, we asked you what were the main reasons for seeking ISO 9000 and 14000 certifications. Figures 8a and 8b below summarize the responses.

**Figure 8a: Motivations for ISO 9000 Certification**



**Figure 8b: Motivations for ISO 14000 Certification**



Overall, corporate “image” appears to be a key reason to seek ISO 9000 and/or ISO 14000 certification. Companies adopt ISO 9000 as well as ISO 14000 primarily to improve quality or environmental aspects, respectively, to enhance corporate image, and to gain marketing advantage.

#### *ISO 9000*

Desire for quality improvement, followed by corporate image, is the most important reason for ISO 9000 certification. Gaining marketing advantage is also an important reason, while capturing workers’ knowledge is also often considered important. There are some interesting differences between countries with respect to motivations. The US, Canadian and Australian firms were more driven by marketing advantages than by corporate image considerations. For companies in Hong Kong and Taiwan, enhancing corporate image was somewhat more important than quality improvement. For firms in France, capturing workers’ knowledge was somewhat more important than enhancing corporate image. Taiwanese firms consider export to be a somewhat important reason for ISO 9000 certification.

In the US, quality improvements and marketing advantage were the most important reasons why firms sought ISO 9000 certification, while improving corporate image was slightly less important. Capturing workers’ knowledge was only somewhat important. Avoiding export barriers played a larger role for US firms than for those in several other countries.

#### *ISO 14000*

Enhancing corporate image was by far the main motivator in ISO 14000 certification. Other motivations which were listed as important include seeking environmental improvements, marketing advantage, and improved community relations. There were some striking differences between countries. For French firms, for instance, enhancing corporate image was a very important reason to seek ISO 14000, with an importance score surpassing that of other countries. For both French and Swedish companies, enhancing corporate image represented a much more important reason to adopt ISO 14000 than seeking environmental improvements. In fact, for Swedish firms, seeking marketing advantage was also a very important reason, again much more important than improving environmental performance. Speculatively, this might reflect the belief of firms in France and especially in Sweden that their environmental performance is already very good, and that customers and other stakeholders in France and especially in Sweden are particularly likely to appreciate that good environmental performance.

The general pattern among US respondents was similar to that in other countries. Improving corporate image was less important than in some other countries, and at par with seeking environmental improvement. US firms also reported the lower scores for improving community relations as a motivator for ISO 14000 certification than firms in several other countries. This suggests that firms in the US expect to receive less appreciation from communities and other stakeholders for efforts to improve environmental performance.

#### *ISO 9000 and ISO 14000*

It is informative to compare reasons for seeking ISO 9000 certification with those for ISO 14000 certification. Enhancing corporate image ranked high for both standards, being the leading motivator for seeking ISO 14000 and the second most important motivator for seeking ISO 9000.

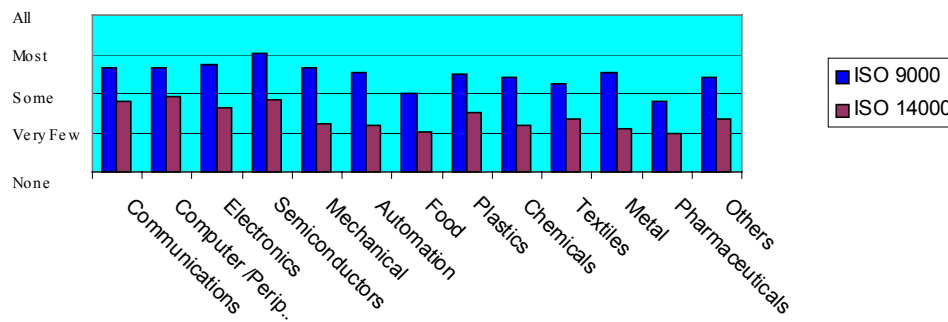


Most firms were partially motivated by “capturing workers’ knowledge”, which suggests that firms recognize the potential of ISO 9000 and ISO 14000 certification to formalize procedures and reduce dependence on individual employees.

**Proportion of Competitors Certified to ISO 9000 and/or ISO 14000**

In question 9c in the survey, we asked how many of your competitors currently have ISO 9000 and/or ISO 14000 certification. Figure 9 below shows the percentage of competitors currently certified to ISO 9000 and ISO 14000, as perceived by the respondents.

**Figure 9: Proportion of Competitors Currently Certified to ISO 9000 or ISO 14000**

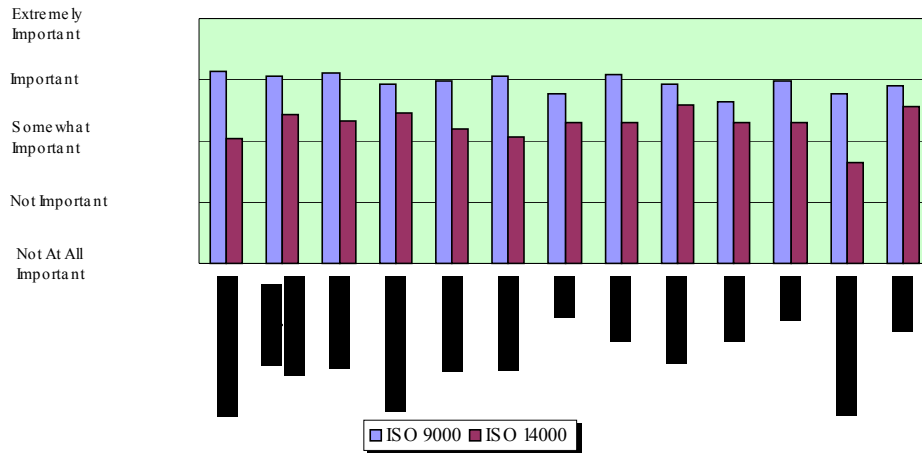


Respondents in most industries perceive that, at present, between “some” and “most” of their competitors are ISO 9000 certified, while only between “very few” and “some” of their competitors currently have ISO 14000 certification. Respondents in the semiconductor industry report the highest proportion of competitors currently ISO 9000 certified (“most”), followed by several other sectors such as communications equipment, computer (and peripheral) manufacturers, and electronics firms, while respondents in the pharmaceuticals industry report the lowest proportion (“some”). The highest proportion of competitors certified to ISO 14000 is reported in the computers and peripherals sector, followed by semiconductors and communications. The food and pharmaceuticals industries again score lowest. Taken together, this indicates that ISO 9000 and ISO 14000 certification have penetrated furthest into the communications, computers and peripherals, electronics and semiconductor industries, and least far into the food and pharmaceutical sectors.

**ISO 9000 and ISO 14000 Certification and Company Success**

In question 8 of the survey we asked to what extent ISO 9000 and/or ISO 14000 was critical to your company’s continued success. Figure 10 illustrates the responses to this question.

**Figure 10: How Important Is ISO 9000 / ISO 14000 to Your Company's Continued Success**



From the responses, it is clear that both ISO 9000 and ISO 14000 certification are considered between “somewhat important” to “important” for the companies’ continued success. ISO 9000 is generally considered “important”, while ISO 14000 is between “somewhat important” and “important”. We should note that this question will exhibit an inevitable sample selection and respondent bias: firms that chose to respond to the survey are likely to be more satisfied with their ISO 9000 and/or ISO 14000 certification, and the respondents were individuals who had been closely involved with the certification efforts, and therefore unlikely to report that the certification was not important.

*ISO 9000*

The average score for ISO 9000 certification across all industries was 3.95 (where 3 corresponds to “somewhat important” and 4 to “important”). The industries in which ISO 9000 is considered most important are communications, computers and peripherals, electronics, semiconductors, mechanical, automation, plastics, chemicals, and metal; the textile industry reports the lowest score, with food and pharmaceuticals also reporting lower than average scores. This breakdown across industries corresponds to the responses in Figure 9: sectors attaching more importance to ISO 9000 certification generally report higher proportion of competitors certified today.

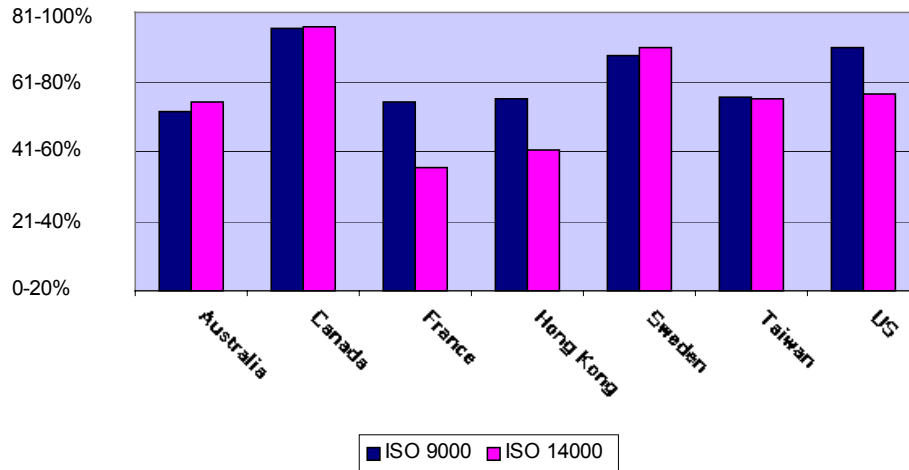
*ISO 14000*

The average score for ISO 14000 is 3.27, translating into a bit more than “somewhat” important. The chemical sector reports the highest score, followed by semiconductors and computers/peripherals. Note that “others” also scores very high for ISO 14000; this is perhaps due to a relatively large number of respondents in the paper and forestry industries, where sustainable forestry practices are increasingly becoming a requirement in many important markets. The pharmaceutical sector reports the lowest score. Comparing, again, with the proportion of competitors certified, we see that communications equipment manufacturers only find ISO 14000 “somewhat important”, yet that is one of the sectors in which the largest proportion of competitors is already certified to ISO 14000. The chemical sector displays the opposite picture: respondents consider ISO 14000 quite important, but report quite few competitors to be certified.

## **Percentage of Employees Trained During ISO 9000 or ISO 14000 Certification**

In question 11 of the survey, we asked for the percentage of employees trained during ISO 9000 or ISO 14000 certification. Figure 11 illustrates the responses to this question.

**Figure 11: Percentage of Employees Trained during ISO 9000 or ISO 14000 Implementation**



This question was included in the survey to investigate whether there was any systematic difference in thoroughness of ISO 9000 and/or ISO 14000 implementation: presumably, a higher proportion of employees trained would reflect a more thorough implementation. Given that the standard is globally harmonized, one would expect to find the same response to this question in all countries. Interestingly, we find substantial differences between countries, though without further analysis, we are reluctant to ascribe these differences to differences in thoroughness of implementation.

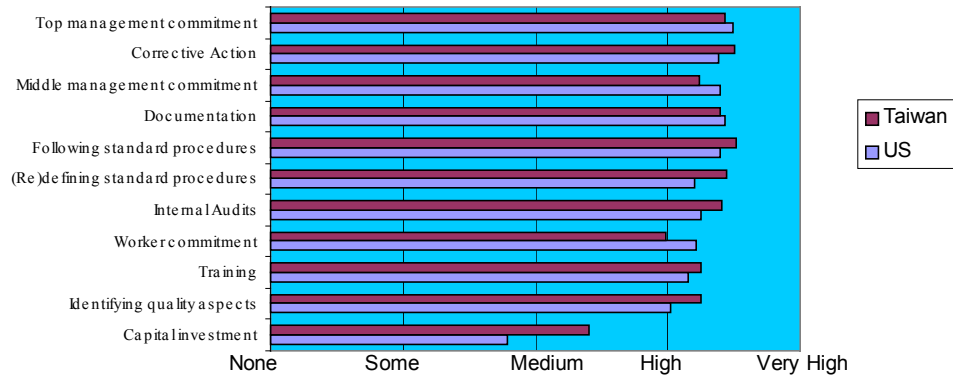
The results show that, on average, firms with ISO 9000 certification trained over 80% of their employees. The countries in which the largest proportion of employees was trained were Canada, with 95%, the US with 90%, and Sweden with 85%. The lowest proportion of employees trained was reported in France, Hong Kong, Taiwan and Australia, where only about 70% percent of employees received training. The results for ISO 14000 are largely similar, although the percentages are generally lower than those for ISO 9000. Overall, firms report that about 55% of their employees received training during ISO 14000 certification. The countries reporting the highest percentages were Canada with over 95% and Sweden with 90%. French respondents reported training only 35% of employees.

## **Important Factors in the Implementation of ISO 9000 and ISO 14000**

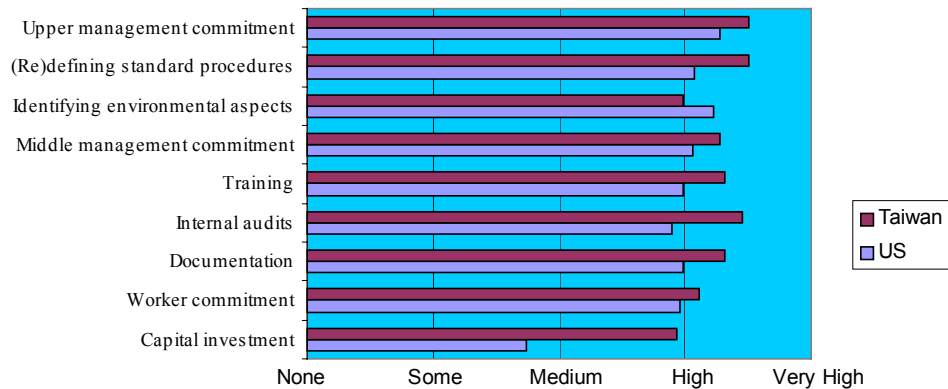
In question 12a of the survey, we asked which factors were important during implementation of ISO 9000 and ISO 14000 certification. Figures 12a and 12b illustrate the responses to these questions from the US and Taiwanese respondents. Most countries followed highly similar patterns, so we have omitted other countries to make the graphs more legible.

Respondents reported a high degree of commonality in factors that were considered important in ISO 9000 and ISO 14000 certification. In both cases, respondents attached very little importance to capital investment, reinforcing the view that the main expenses involved with certification are the employees' time and consulting and audit fees. For both ISO 9000 and ISO 14000, upper management commitment was considered the most important factor.

**Figure 12a: Important Factors for ISO 9000 Implementation**



**Figure 12b: Important Factors for ISO 14000 Implementation**



*ISO 9000*

The factors assigned the highest importance in the implementation of ISO 9000 certification were top management commitment, followed by documentation, middle management commitment, following standard procedures, and implementation of corrective action. Of high importance were (re)defining standard procedures, periodic audits, and worker commitment. Training and identifying quality aspects were still quite important, while capital investment was

not important. It may be hypothesized that all of these factors contribute to streamlining operations. It is interesting to note that worker commitment was considered important but not as much as that of middle and upper management.

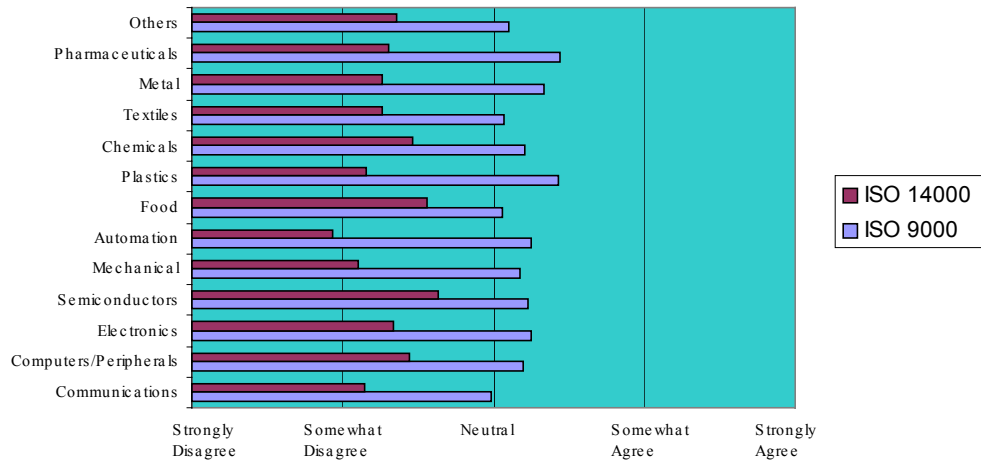
*ISO 14000*

Among the global respondents, the factors assigned the highest importance in the implementation of ISO 14000 certification were top management commitment, followed by identification of environmental aspects, middle management commitment, implementation of corrective action, training and worker commitment. Important factors were training and documentation, and capital investment was again unimportant. A noteworthy observation from the US-Taiwan comparisons is that capital investment was considered far more important in Taiwan than in the US, suggesting that Taiwanese respondents may have chosen to implement more physical process changes during the certification procedure than their US counterparts. This in turn may be a result of the longer history of strict environmental regulation in the US than in Taiwan. It is interesting that identifying environmental aspects was considered relatively more important for ISO 14000 certification than identifying quality aspects was for ISO 9000 certification; this suggests that firms found the task of identifying their environmental aspects and impacts more challenging and/or more revealing than identifying quality aspects.

**Requiring Key Suppliers to be ISO 9000 and/or ISO 14000 Certified**

In question 13d of the survey, we asked whether you require your suppliers to have ISO 9000 certification or ISO 14000 certification. Figure 13 displays the responses.

**Figure 13: Do You Require Your Suppliers to Have ISO 9000 or ISO 14000?**



*ISO 9000*

On average, respondents were neutral regarding the statement that they require their key suppliers to have ISO 9000 certification, though leaning to partially agreeing. Firms in the pharmaceuticals, metal and plastics industry were most likely to require their suppliers to be ISO 9000 certified, while firms in textiles, food and communications were least likely to make that

requirement. This contrasts with the extent to which firms consider ISO 9000 critical to their own success: pharmaceutical firms did not consider ISO 9000 important for themselves, but do require it of suppliers. This may well be a result of regulatory requirements: the pharmaceuticals firms themselves are already under strict regulation from, for instance, the US Food and Drug Administration or its counterparts in other countries, which may in turn require having ISO 9000 certified suppliers for certain critical equipment or components.

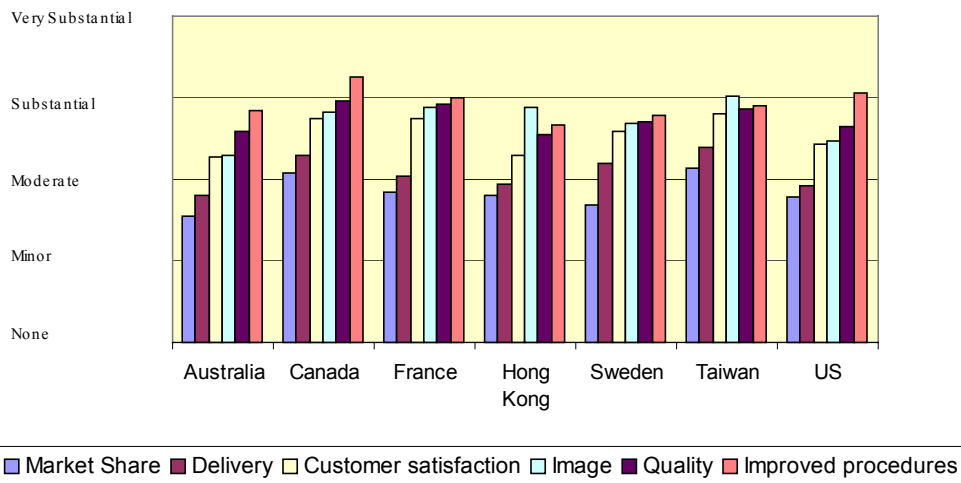
*ISO 14000*

At the time of the survey, most firms disagreed somewhat or were neutral about the statement that they require their key suppliers to have ISO 14000 certification. Respondents in the semiconductor, food, chemical, computer and peripheral, and electronics industries were most likely to require ISO 14000 from their key suppliers. The relatively high score among food companies is interesting, given the low importance they attached to ISO 14000 certification for themselves. This may well reflect growing pressure from consumers through retailers on food companies to ensure that sound environmental practices are in place throughout the supply chain, though it does not explain why respondents in the food industry report relatively few competitors as having ISO 14000 certification.

**Benefits Experienced from ISO 9000 or ISO 14000 Certification**

In question 15a of the survey, we asked what the main benefits are of ISO 9000 and ISO 14000 certification. Figures 14a and 14b describe the responses.

**Figure 14a: Benefits of ISO 9000**

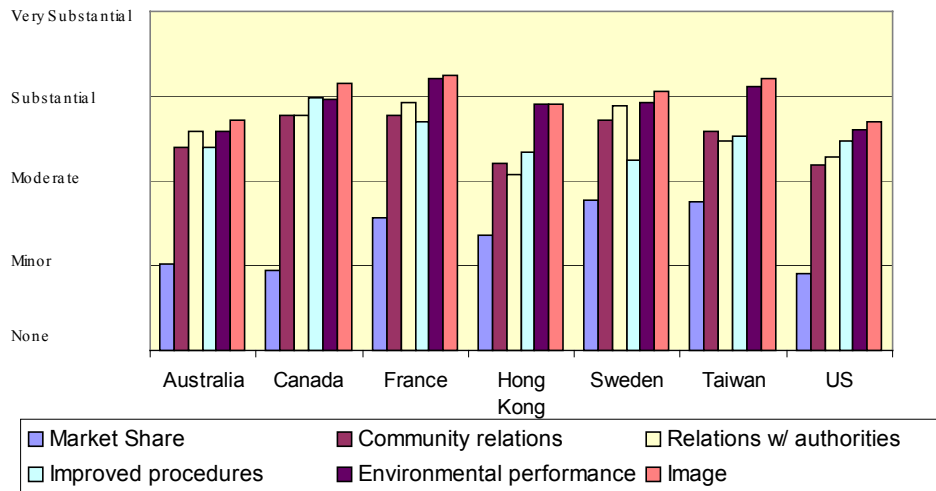


*ISO 9000*

Firms with ISO 9000 reported “moderate” to “substantial” benefits from ISO 9000 certification. The main categories of benefits were improved internal procedures, quality improvements, improved corporate image, and increased customer satisfaction. In most countries, “increased market share” was generally a “minor” to “moderate” benefit, suggesting that either market share did not increase much as a result of ISO 9000 certification, or that any benefits of such a market

share increase were small compared to the other benefits obtained. It is particularly interesting to note how prevalent the benefit of “improved procedures” was found to be. Most of the benefits, however large, are intangible in nature, and hence inherently difficult to quantify. Firms in the US reported largely similar benefits as did firms in other countries, dispelling the notion that firms in the US have less to gain from certification.

**Figure 14b: Benefits of ISO 14000**



### *ISO 14000*

The benefits obtained from ISO 14000 were often as large as those from ISO 9000. The main categories of benefits from ISO 14000 certification were improved corporate image, followed by improved environmental performance, and better community relations. Improved internal procedures and improved relations with authorities were also moderate to substantial benefits; increased market share was again a relatively minor to moderate benefit.

US respondents reported the lowest benefit from improved image. This may well reflect that corporate image is considered less important in the US, or that environmental performance is a less important aspect of corporate image. US respondents also reported the second lowest score, after Hong Kong, for benefit from improved relations with authorities. This may indicate that authorities in other countries attach more importance to ISO 14000 than the EPA in the US has done to date; however, drawing any firm conclusions about such issues based on a survey would clearly be overly ambitious.

### *ISO 9000 and ISO 14000*

Surprisingly, given that improved internal procedures was cited as a major benefit for both ISO 9000 and ISO 14000, respondents reported only minor cost savings. Presumably, the improvements in internal procedures had more impact on quality and/or environmental performance rather than on productivity.

It is important to compare benefits with reasons for becoming certified. It is evident that many expectations were met, especially improved corporate image and improvement of quality and environmental performance. However, despite expecting marketing advantage, increased market share was not considered an important benefit of ISO 9000 or ISO 14000.

The key benefits for both standards seem to be primarily intangible ones: “image”, “quality improvements”, “community relations”, etc. It is clear that the respondents are satisfied with their experiences with ISO 9000 and/or ISO 14000 certification (though again, this is partly due to the sample selection), but it also seems that most respondents would be hard-pressed to quantify the benefits achieved. Given that for many firms, the decision whether or not to adopt ISO 9000 or ISO 14000 will be made on financial grounds, it is troubling that such a large part of the benefits are intangible and apparently unquantifiable. In order to bring such firms into the fold, developers and promoters of standards such as ISO 9000, ISO 14000, and future comparable standards will have to face the challenge of capturing, in a more quantitative way, the benefits these standards can yield.

## **Conclusions**

In this report, we have provided a preliminary descriptive analysis of the survey data received from Canada, the US, France, Sweden, Hong Kong, Australia / New Zealand, and Taiwan. Data are still being received from Japan, Korea, several South-East Asian countries, and Argentina, and will be added to this analysis later.

We find that there are clear differences between individual countries in specific questions, but also that the major patterns of responses are quite robust across countries. The main motivations for seeking ISO 9000 or ISO 14000 certification are partly internal (such as cost reductions, improved procedures, etc.) and partly external (such as customer pressure, improved image, etc.); similarly, the benefits experienced from certification are similarly partly internal and partly external. Most of the benefits tend to be intangible, though: for instance, improved image rather than cost reductions or market share improvements. In most industries, ISO 9000 certification is considered “important” for firms’ continued success; ISO 14000 certification is considered “somewhat important”.

The proportion of employees trained during ISO 9000 or ISO 14000 implementation varies significantly across countries. Capital investment was rarely a major aspect of ISO 9000 or ISO 14000 implementation, suggesting that the effect of the standards is primarily on procedures and documentation.



**Appendix: Survey questions**

8. If your company is certified to ISO 9000 or ISO 14000 (or is currently seriously considering it), to what extent did your company's continued success depend on certification?

	not certified and not considering	not important at all	not important	somewhat important	important	extremely important
ISO 9000	0	1	2	3	4	5
ISO 14000	0	1	2	3	4	5

9b. Please indicate how important each of the following reasons was for seeking, maintaining, or seriously considering **ISO 9000** certification. (If you do not have ISO 9000 certification and are not considering it, please do not answer this question.)

	not important at all	not important	somewhat important	important	extremely important
cost reductions	1	2	3	4	5
quality improvements	1	2	3	4	5
marketing advantage	1	2	3	4	5
customer pressure / customer demands	1	2	3	4	5
many competitors were already ISO 9000 certified	1	2	3	4	5
benefits experienced by other certified companies	1	2	3	4	5
avoid potential export barrier	1	2	3	4	5
capturing workers' knowledge	1	2	3	4	5
relations with authorities	1	2	3	4	5
relations with communities	1	2	3	4	5
corporate image	1	2	3	4	5

A similar question was included for ISO 14000, with “quality improvements” replaced by “environmental improvements.”

9c. How many of your competitors were registered to **ISO 9000** when you decided to attain registration, and how many are registered today?

	unknown	none	very few	some	most	all
Competitors registered when we decided to seek registration:	0	1	2	3	4	5
Competitors registered today:	0	1	2	3	4	5

10. Please indicate which group within your organization initiated the main drive for certification to each of the following standards; circle all that apply.

	ISO 9000	ISO 14000
not applicable	0	0
quality department	1	1
environmental, health and safety department	2	2
marketing	3	3
operations	4	4
CEO, top management	5	5
whole organization	6	6
R&D, design, development department	7	7

11. What percentage of your employees received training for each of the following certifications?

	not applicable	0-20%	21-40%	41-60%	61-80%	81-100%
ISO 9000	0	1	2	3	4	5
ISO 14000	0	1	2	3	4	5

12a. Please indicate how much effort you had to put into each of the following factors, in order to obtain or maintain **ISO 9000** certification, and how important each factor was for successful implementation. (If you do not have ISO 9000 certification, please do not answer this question.)

	How much importance do you assign to each area?					How much effort did it take?				
	none	some	medium	high	very high	no effort	little effort	medium effort	high effort	very high effort
identification of quality aspects	1	2	3	4	5	1	2	3	4	5
(re)defining standard procedures	1	2	3	4	5	1	2	3	4	5
documentation	1	2	3	4	5	1	2	3	4	5
training	1	2	3	4	5	1	2	3	4	5
capital investment	1	2	3	4	5	1	2	3	4	5
top management commitment	1	2	3	4	5	1	2	3	4	5
middle management commitment	1	2	3	4	5	1	2	3	4	5
workers' commitment	1	2	3	4	5	1	2	3	4	5
periodic audits	1	2	3	4	5	1	2	3	4	5
following standard procedures	1	2	3	4	5	1	2	3	4	5
implementation of corrective action	1	2	3	4	5	1	2	3	4	5

13. To what extent do you agree or disagree with each of the following statements?

13d: "We require our key suppliers to have **ISO 9000** certification."

1: strongly disagree	2: somewhat disagree	3: neutral	4: somewhat agree	5: strongly agree
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15a. How would you assess the specific benefits achieved, in each of the following categories, from ISO 9000 certification?

	not certified	no benefits	minor benefits	moderate benefits	substantial benefits	very substantial benefits
cost reductions	0	1	2	3	4	5
increased productivity		1	2	3	4	5
quality improvements		1	2	3	4	5
environmental improvement		1	2	3	4	5
increased on-time delivery to customers		1	2	3	4	5
increased customer satisfaction		1	2	3	4	5
increased market share		1	2	3	4	5
maintained / increased profit margin		1	2	3	4	5
improved internal procedures		1	2	3	4	5
improved employee morale		1	2	3	4	5
improved relations with authorities		1	2	3	4	5
improved relations with communities		1	2	3	4	5
improved corporate image		1	2	3	4	5

### **Methodological notes**

The analysis reported here should be considered preliminary, as no corrections have been made for possible national differences in response behavior. For instance, it is possible that firms in one country are more likely to report high scores for most questions than firms in another country. Currently ongoing analysis is based partly on normalized responses to take this into account.

There were also some differences between countries with respect to sample selection and survey administration, depending on availability of national databases of certified firms. For instance, in some countries, firms were selected at random from a list of firms certified by one or more main certification agencies, while in other countries, firms were selected at random from a national list of certified firms. These variations could potentially lead to biases in cross-country comparisons, though there is no immediate evidence that this is the case.