



Management Matters in New Zealand – How does manufacturing measure up?

**Findings from the New Zealand Management Practices
and Productivity global benchmarking project**

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Foreword



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This unique research project for the Ministry of Economic Development (MED) benchmarks management practices in New Zealand manufacturing firms against the global best. The project was undertaken by a research team from the University of Technology Sydney and is part of a world-wide study led by the London School of Economics and McKinsey & Co. The findings suggest that while some of New Zealand's firms are as good as any in the world, there is a substantial 'tail' of firms that are mediocre, especially in their approach to people management. This is a key differentiating factor between New Zealand and better performing, more innovative countries, and it echoes similar recent findings for Australian manufacturers.

The research findings also suggest that there is a link between the quality of management – scored across 18 dimensions of people, performance and operations – and enterprise productivity. A major challenge for New Zealand is its low per capita income compared with other developed countries, despite a manufacturing base which is striving to become more agile and outward looking. Moreover, since the end of the 1990s, New Zealand has slipped from 10th to 20th in the World Economic Forum's Global Competitiveness Index, with

the 2009 OECD Economic Survey of New Zealand making the point that "boosting {New Zealand's} productivity growth is crucial for closing the substantial income gap with other OECD countries".

It is generally acknowledged that New Zealand has weathered the world economic downturn relatively well, overcoming its vulnerability as a small open economy to the extent possible with an effective fiscal stimulus package. However, this study suggests that New Zealand manufacturing firms need to improve the management performance to build longer-term competitive advantage. It reveals that some management practices represent opportunities for improvement for these manufacturing firms. The study demonstrates that a cost-effective way of improving the productivity performance of New Zealand firms is to promote a transformation in the calibre of the management and leadership of its organisations. This is the key to a more innovative, dynamic and sustainable economy into the future.

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Executive Summary

New Zealand's governance and regulatory regime is considered to be of high standard, yet its Gross Domestic Product (GDP) per capita remains low and significantly lags other comparable OECD countries¹. The Ministry of Economic Development (MED) recognises management talent as an underlying determinant of productivity growth, emphasising that "management and leadership skills impact substantially on organisational performance. Skilled managers create an environment where innovation and skill development can flourish"². Policy decisions that target management capability with the objective of enhancing productivity growth must be backed by evidence; however there is currently a paucity of research that quantifies and analyses New Zealand's management quality and performance. The little evidence which exists shows that New Zealand may well be held back by a deficit in management capability.

It is in this context that MED, in conjunction with New Zealand Treasury, the Department of Labour, and New Zealand Trade and Enterprise, engaged the University of Technology Sydney to conduct a research study on management practices and productivity in the New Zealand manufacturing sector. The research employed a methodology³ developed by the London School of Economics (LSE) and McKinsey & Company which had already been implemented in 16 other countries internationally. This report reviews management practices in New Zealand manufacturing firms, identifies key determinants of management performance and interprets the relationship between management capability and productivity performance of firms. The study also globally benchmarks New Zealand management with a range of competitor countries, including advanced economies such as United States, United Kingdom, Canada, Australia, Japan and emerging economies like China and India.

Evaluating New Zealand management practices

In partnership with LSE, the standardised research methodology has been authentically replicated to collect management practice data from 152 medium and large-sized manufacturing firms⁴ in New Zealand during mid 2009.

Central to the research methodology is the unique quantitative survey instrument used to measure management practices – a conversation-based interview scoring grid originally designed by McKinsey & Company, which defines and describes the criteria for scoring management practices from one (worst practice) to five (best practice) across eighteen key dimensions of management practices. The eighteen dimensions of the management practices instrument are collated into three distinct areas of management - operations management, performance management, and people management. The overall management score of each firm is measured as a consolidation of scores across each of these management areas. The key to obtaining unbiased responses from firms is the 'double blind, double scored' technique that was used in the management interviews⁵.

¹ *Economic Survey of New Zealand, 2009*, (Paris: OECD, 2009).

² *Underlying Determinants of Productivity Growth - Business Environment - Economic Development Indicators 2007*, (Wellington: Ministry of Economic Development, 2007).

³ Bloom, Nicholas and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries", *The Quarterly Journal of Economics* 122 (4): (2007), p.1351-1408.

⁴ The methodology developed by LSE defines medium firms as employing 100 to 5000 employees, which we use for international benchmarking in this study. For other parts of this study, we broaden our sample to include firms employing 50 to 5000 employees.

⁵ The 'double blind' nature of the interviews meant that the managers of the firms were not aware of the scoring grid, and the interviewers were also not privy to any background information on the firm, so as to eliminate any response or scoring bias. Approximately 80 per cent of all interviews were 'double scored', in that while they were run and scored by a main interviewer, they were also silently listened to and

How does management in manufacturing firms measure up?

New Zealand managers surveyed are 'average to middling' by global standards. Management practices in New Zealand manufacturing firms rank tenth among the seventeen countries that have participated in this research so far. New Zealand falls in the second tier of countries in terms of its management performance. Among the three areas of management, certain dimensions within operations and performance management have room for improvement to catch up with the global best performer. People management emerges as the weakest area, where New Zealand firms trail most behind global best practice. Hence, management of human capital through attracting, developing and retaining talent is where most attention is required from both corporate leaders and public policy.

Research previously conducted using the LSE/McKinsey methodology shows a significant positive relationship between management and productivity in many countries⁶. Effective management practices are associated with higher productivity and output in New Zealand manufacturing firms too. The results demonstrate a strong positive correlation between New Zealand management practices and various firm productivity performance indicators, particularly the profit per employee, firm sales and number of employees. These results are consistent with findings from other international research⁷. The research uncovers key drivers of New Zealand management practices and other significant findings as follows:

- Firm size is an important determinant of management performance; larger New Zealand firms significantly outperform smaller firms.
- Ownership is also a factor; multinational corporations adopt and spread better management practices as compared to domestic firms.
- New Zealand publicly listed companies also exhibit superior management performance compared to other types of companies including privately-owned firms, family-owned firms and co-operatives.
- Family run firms tend to underperform other firm types in their management practices.
- Higher levels of education and skills among both managers and non-managers positively impacts management performance.
- The degree of manager autonomy is a crucial factor leading to superior management performance.
- Organisational hierarchy is also significantly related to management scores, indicating that optimally balancing organisational structure and managerial autonomy is crucial.
- While the international study found increased labour market flexibility correlated with a superior people management score in a number of countries, the New Zealand findings do not support this. New Zealand has over the years developed a relatively flexible labour market, but does not score well in people management practices.

independently scored by another team member. As per privacy regulation, interviewees in New Zealand were informed of their call being monitored for quality and control purposes. The scores of the listener were used for calibration and not for analysis purpose.

⁶ Nick Bloom, Stephen Dorgan, John Dowdy, John Van Reenen, "Management Practice & Productivity: Why they matter?", *Management Matters*, Nov 2007, p. 5.

⁷ Nick Bloom, Stephen Dorgan, John Dowdy, John Van Reenen, "Management Practice & Productivity: Why they matter?", *Management Matters*, Nov 2007, p. 5; *Management Matters in Australia: Just how productive are we?*, November 2009, Department of Innovation, Industry, Science and Research, Australia <http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>; *Management Matters*, Working paper 12, March 2009 Institute of Competitiveness and prosperity, Canada.

- The nature and characteristics of people management, including collaborative workplace relations and an open organisational culture, are primarily determined by firms themselves rather than by the structure of the labour market.
- New Zealand managers tend to over-rate their firms' management performance. Their self-assessed scores of how they see their firm performing do not align with the firm's management score as assessed through the interview scoring grid.
- New Zealand manufacturers need to pay attention to both emerging and the advanced economies; the average New Zealand firm is below the top 30 per cent of Indian and Chinese firms taken together, the top 59 per cent of Australian, 64 per cent of Japanese, and 75 per cent of the US manufacturing firms in management performance.

Issues for New Zealand enterprises

New Zealand manufacturers would benefit by focussing much more on the development of management capabilities within their firms. This calls for a more systematic approach to benchmark management performance, identify performance gaps and make improvements as a 'way of life'. While firms have room to improve in all areas of management, particular attention is needed in the area of people management. This is the key to building higher order competencies and dynamic capabilities in firms.

Issues for the New Zealand government

This research study will assist government in making informed policy decisions. Its findings about the association between management practices and firm productivity performance and the relationship between firm size and multinational status and management quality contribute to the evidence base for future policy decisions.

Improving New Zealand's productivity performance

In summary, the research highlights the challenge for New Zealand manufacturers in improving management skills and capabilities. Firms and managers themselves must take primary responsibility for upgrading their management skills and improving their practices. However, public policy may also have a role in promoting the transformation of workplace performance and lifting the quality of New Zealand management through training and education and through programs which generate and diffuse globally competitive management practices. The findings of this study suggest that improving management practices in manufacturing firms can contribute positively to New Zealand's productivity performance.

Main Report

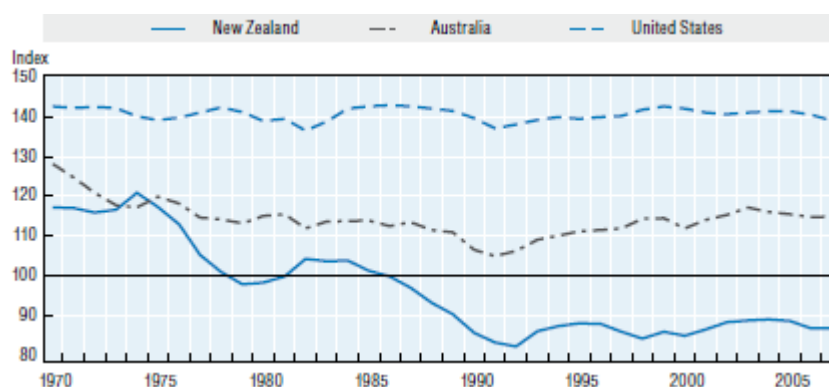
Management Matters in New Zealand

How does manufacturing measure up?

1 The productivity imperative

New Zealand is generally considered to have a governance and regulatory regime of a high standard⁸. However, its Gross Domestic Product (GDP) per capita remains lower than it should. It fell steadily relative to its peers from the mid 1970s to early 1990s and has remained below the OECD average since then (Exhibit 1). In the last eight years, New Zealand has slipped from 10th to 20th in the World Economic Forum's Global Competitiveness Index⁹. The 2009 OECD Economic Survey of New Zealand points out that "boosting [New Zealand's] productivity growth is crucial for closing the substantial income gap with other OECD countries"¹⁰.

Exhibit 1 - Gaps in New Zealand Real GDP per capita



GDP per capita has been calculated in USD at constant prices and constant Purchasing Power Parity (PPP).

OECD = 100, at constant 2000 PPPs and constant prices, includes 26 countries, Czech Republic, Hungary, Poland and Slovak Republic excluded.

Source: OECD, *National Accounts Database*.

In the current global economic climate, New Zealand businesses across all industry sectors are under immense pressure. The manufacturing sector is an important part of New Zealand's economy, accounting for 14.1% of GDP and 12.7% of employment¹¹. Manufacturing businesses are among the worst affected by the current economic downturn and are faced with a number of challenges, including diminishing demand, an uncertain business environment and tougher financing. Therefore, accelerating productivity in the manufacturing industry is likely to help raise New Zealand's economic prosperity.

Management capability is known to play a vital role in boosting productivity and performance at the enterprise level¹², thereby pushing forward the nation's overall economic productivity

⁸ *Economic Survey of New Zealand, 2009*, (Paris: OECD, 2009).

⁹ World Economic Forum's Global Competitiveness Report 2009-10.

<http://www.weforum.org/en/initiatives/gcp/Global%20Competitiveness%20Report/index.htm>.

¹⁰ *Economic Survey of New Zealand, 2009*, (Paris: OECD, 2009).

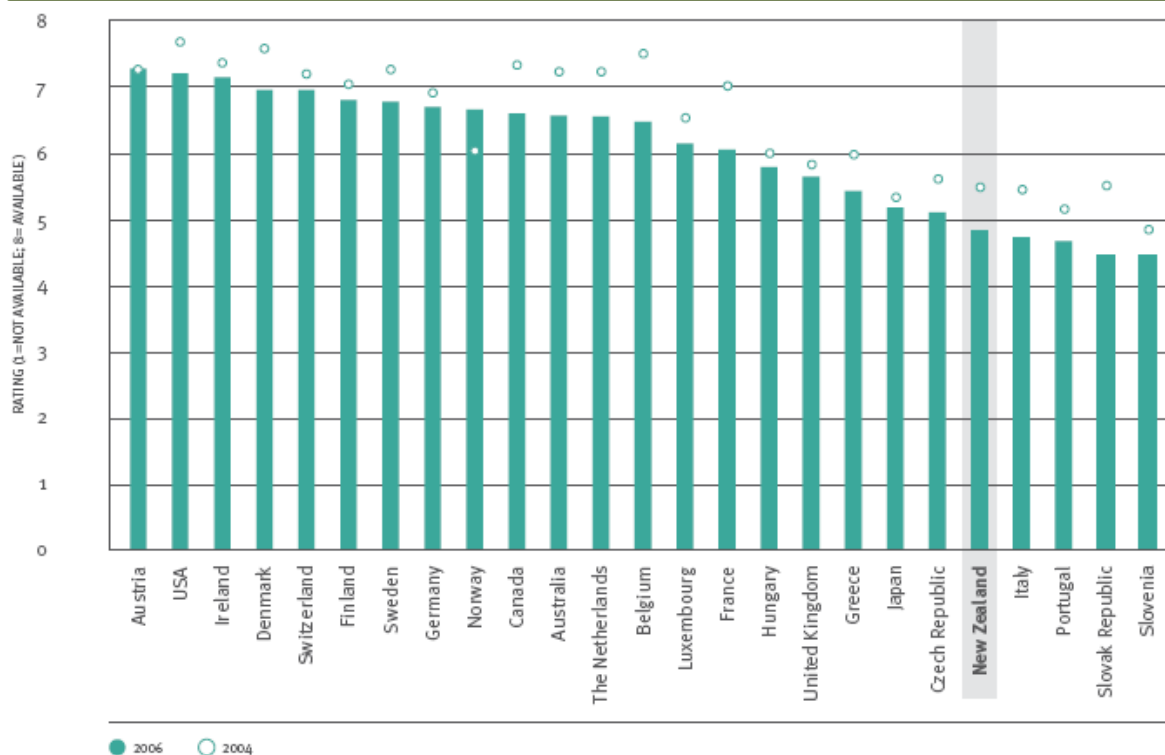
¹¹ *New Zealand Economic and Financial Overview 2009: Manufacturing*, (Wellington: The Treasury, New Zealand Government, 2009).

¹² *Cracking the Performance Code: How the Top Firms Succeed*, (UK Work Foundation 2003, 2005); Black, Sandra E. and Lisa M. Lynch. (2004) "What's Driving the New Economy? The Benefits of Workplace Innovation," *The Economic Journal*, vol. 114, February, pp. 97-116 and Black,

agenda. It is in this context that the London School of Economics (LSE) and McKinsey & Company global management research findings substantiate that effective management practices and their adoption are linked with higher performance and productivity gains¹³. Further, the Ministry of Economic Development (MED) recognises management talent as an underlying determinant of productivity growth emphasising that “management and leadership skills impact substantially on organisational performance. Skilled managers create an environment where innovation and skill development can flourish”¹⁴.

Measuring and quantifying management capability, however, is not easy. Because of this, current evidence on New Zealand’s management quality and performance relative to its peers is sparse. The evidence which exists shows that New Zealand is lagging behind in management capability. The survey of International Institute for Management Development (IMD) shows that the perceived availability of management skills in New Zealand is lower than in Australia, the UK and many OECD countries, with New Zealand ranking 22nd out of 24 countries (Exhibit 2).

Exhibit 2 - Rating of Perceived availability of competent senior managers



Source: IMD World Competitiveness Yearbook 2006.

Further, the Business Operations Survey 2007 developed by Statistics NZ in conjunction with the Ministry of Economic Development (MED) and the Ministry of Research, Science and Technology (MoRST) surveyed the business practices and behaviours that impact performance and found that the most significant factor hampering innovation activities in New Zealand firms

Sandra E. and Lisa M. Lynch. (2001). "How to Compete: The Impact of Workplace Practices and Information Technology on Productivity", *Review of Economics and Statistics*, August, pp. 434-445.

¹³ Nick Bloom, Stephen Dorgan, John Dowdy, John Van Reenen, "Management Practice & Productivity: Why they matter?", *Management Matters*, Nov 2007, p. 5.

¹⁴ *Underlying Determinants of Productivity Growth - Business Environment - Economic Development Indicators 2007*, (Wellington: Ministry of Economic Development, 2007).

was due to the lack of appropriately skilled management resources¹⁵. The 2008 Business Operations Survey further reveals that improvement in managerial skills is consistently viewed as a requirement across all surveyed New Zealand firms¹⁶.

It is in this context that the MED, in concert with New Zealand Treasury, the Department of Labour, and New Zealand Trade and Enterprise, engaged the University of Technology, Sydney to conduct a research study on management practices in the New Zealand manufacturing sector. This research study employs a survey mechanism developed by the London School of Economics and McKinsey & Company which will help understand the correlation between management capability and firm success among medium and large manufacturing firms. Similar surveys have been conducted in 16 other countries enabling the findings of the New Zealand research study comparable with a range of competitor countries around the world - which include advanced economies such as United States, United Kingdom, Canada, Australia, Japan and emerging economies like China and India.

¹⁵ *Business Operations Survey 2007*, (Statistics New Zealand, Ministry of Economic Development, Ministry of Research, Science and Technology, 2007).

¹⁶ *Business Operations Survey 2008*, (Statistics New Zealand, Ministry of Economic Development, Ministry of Research, Science and Technology, 2008).

2 Measuring management practices

There is a general belief that the level of management capability within firms is a driver of organisational performance and productivity, and in turn economic growth and competitiveness¹⁷. However, a major impediment to analysing and understanding the relationship between management practices and enterprise, industry and national economic performance has been the lack of reliable empirical data on management.

To overcome this shortcoming, a research team at the LSE designed an innovative and robust research methodology to measure management practices in manufacturing firms¹⁸. Since 2004, this methodology has now been deployed in 17 countries/18 jurisdictions¹⁹ around the world and most recently included New Zealand. Partnering and closely collaborating with LSE, management practice data from 152 medium and large-sized manufacturing firms²⁰ in New Zealand has been collected during mid 2009.

Central to this research methodology is the unique quantitative survey instrument used to measure management practices – through a conversation-based interview scoring grid originally designed by McKinsey & Company, which defines and describes the criteria for scoring management practices from one (worst practice) to five (best practice) across eighteen key management practices. The eighteen management practices are collated into three distinct areas of management - operations management (seven practices), performance management (five practices), and people management (six practices) (Exhibit 3).

¹⁷ *Cracking the Performance Code: How the Top Firms Succeed*, (UK Work Foundation 2003, 2005); Black, Sandra E. and Lisa M. Lynch. (2004) "What's Driving the New Economy? The Benefits of Workplace Innovation," *The Economic Journal*, vol. 114, February, pp. 97-116 and Black, Sandra E. and Lisa M. Lynch. (2001). "How to Compete: The Impact of Workplace Practices and Information Technology on Productivity", *Review of Economics and Statistics*, August, pp. 434-445.

¹⁸ Bloom, Nicholas and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries", *The Quarterly Journal of Economics* 122 (4): (2007), p.1351-1408.

¹⁹ Northern Ireland is seen as a separate jurisdiction.

²⁰ LSE defines medium firms 100 to 5000 employees, which we use for international benchmarking in this study. For other parts of this study, we broaden our sample to include firms employing 50 to 5000 employees. Note that Statistics NZ defines small firms as firm size less than 20 employees, medium size firms from 20 to 199 employees, and large as firms with employees 200 and greater.

Exhibit 3 - Interview Scoring Grid – Management Practices dimensions

Management Practices		18 management dimensions
Operations	questions embedded in interviews	Adoption of Lean Manufacturing
		Rationale for the adoption
		Process documentation
		Performance tracking
		Operation Performance review
		Performance Dialogue
		Consequent management
Performance	questions embedded in interviews	Types of goals
		Interconnection of goals
		Time Horizon
		Setting stretched goals
		Clarity of goals
People	questions embedded in interviews	Installing a talent mindset
		Rewarding top performance
		Addressing poor performance
		Promoting high performers
		Attracting high performers
		Retaining high performers

Three areas of management practices each answer one of the three questions.

How well are firms’ operations managed? Operations Management revolves around the modern manufacturing techniques and management systems deployed to enhance efficiency, reduce costs, and create and deliver value to customers. Systematically monitoring key performance indicators and methodologically tracking and reviewing operational performance are fundamental to the successful functioning of firms. Best practice requires these operations management practices to be so deeply rooted in the culture of the company that implementing them within firms should be a ‘natural way of life’.

Is business performance managed effectively? Performance Management includes the processes around setting goals and targets. Effective management in this area is about ensuring that these goals and targets integrate different business areas, are realistic yet challenging, and lead to sustainable value creation. A balanced orientation towards both long-term and short-term corporate goals and targets is equally important.




How do firms manage their human resource? People management is all about using a firm’s human capital to create a sustainable competitive advantage. Therefore, people management is a key driver of firm performance and productivity. Best practice entails adopting a structured approach towards attracting, retaining and promoting talent and deploying tangible measures to motivate and nurture employees, their skill-sets and competencies.

In order to illustrate how the scoring works, it is perhaps useful to give a concrete example of the scoring of one of the dimensions of the three higher level management practices²¹. In

²¹ The whole set of scoring grid, along with other information about the sampling methodology can be found in the appendix to the report at Bloom, Nicholas and John Van Reenen, “Measuring and Explaining Management Practices Across Firms and Countries”, *The Quarterly Journal of Economics* 122 (4): (2007), p.1351-1408

Exhibit 4 we outline the scoring grid for the ‘performance tracking’ dimension of the ‘operations management practice’. Information on what constitutes best and worst practice across each of the 18 dimensions is set out in Exhibit 19, 21, 23, below.

Exhibit 4 - Example of an operations management question and associated scoring grid

Operations	Performance tracking (KPI's)		Measures tracked do not indicate directly if business objectives are being met. Tracking is an ad-hoc process or are not tracked at all	score 1 "worst"
			Most key performance indicators are tracked formally. Tracking is overseen by senior management	score 3 "average"
			Performance is continuously tracked & communicated, both formally and informally, to all staff using a range of visual management tools	score 5 "best"

The LSE methodology has been authentically replicated in New Zealand to ensure consistency and global comparability of the results. The interviewers underwent specialised training in the survey methodology - scheduling and conducting interviews, collecting accurate responses and scoring the management practices. The telephonic interviews lasted an average of 53 minutes, making the New Zealand interviews among the longest in duration worldwide. The interviewed firms were chosen randomly from a database²² of medium- and large-sized manufacturing firms in New Zealand. Within these firms the interviewers spoke to the managers who were directly responsible for the manufacturing operations within their firms. The interviews were conducted in a conversational mode, as opposed to a conventional survey, largely comprising of specific yet open-ended questions revolving around the eighteen management dimensions; this dialogue evoked a clear and detailed picture of management within the firms. The interviewer then interpreted and scored the firms’ management practices against each of the eighteen dimensions on a scale of one to five, with five being the best practice and one the worst practice. These scores were then combined to arrive at the scores across each of the three broad management areas – operations, performance and talent management. Further, the overall management score of each firm was calculated as the average of its individual management scores across each of the eighteen dimensions.

The key to obtaining unbiased responses from firms can be linked to the ‘double blind, double scored’ research methodology that was integral to the management interviews conducted. The ‘double blind’ nature of the interviews meant that the managers of the firms were not aware of the scoring grid, and the interviewers were also not privy to any background information on the firm, so as to eliminate any response or scoring bias. Approximately 80 per cent of all interviews were ‘double scored’, in that while they were run and scored by a main interviewer, they were also independently scored by another team member²³. This double-scoring technique aided in constantly aligning the scoring consistency between the interviewers.

²² The database of medium and large New Zealand manufacturing firms was sourced from Orbis and Dun & Bradstreet.

²³ As per privacy regulation interviewees in New Zealand were informed of their call being monitored for quality and control purposes.

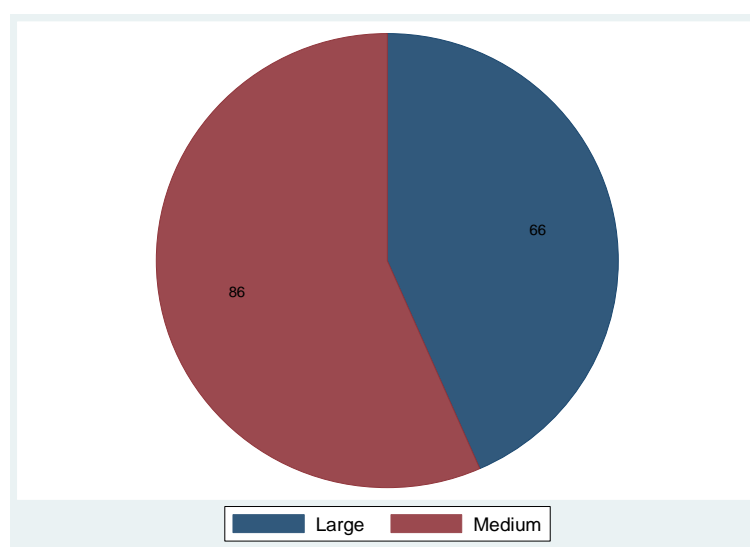
In order to remain consistent with the LSE methodology, firms with size between 100 and 5000 employees are incorporated for the purpose of global benchmarking in Section 5, while the New Zealand domestic analysis in Section 6 is based on firms ranging from 50 to 5000 employees.

3 Interpreting the results

3.1 Demographics of the firms in the sample

This section describes the demographic distribution of the manufacturing firms in the sample. 152 medium and large-sized manufacturing firms were interviewed as part of the survey. The break-down of the interviewed firms on the basis of their size shows that 43 per cent of the interviewed firms are large-sized firms (employing over 200 employees), and the remaining 57 per cent are medium-sized firms (employing between 50 and 199 employees)²⁴ (Exhibit 5).

Exhibit 5 - Number of interviewed firms by medium and large size



Source: New Zealand management practices research.

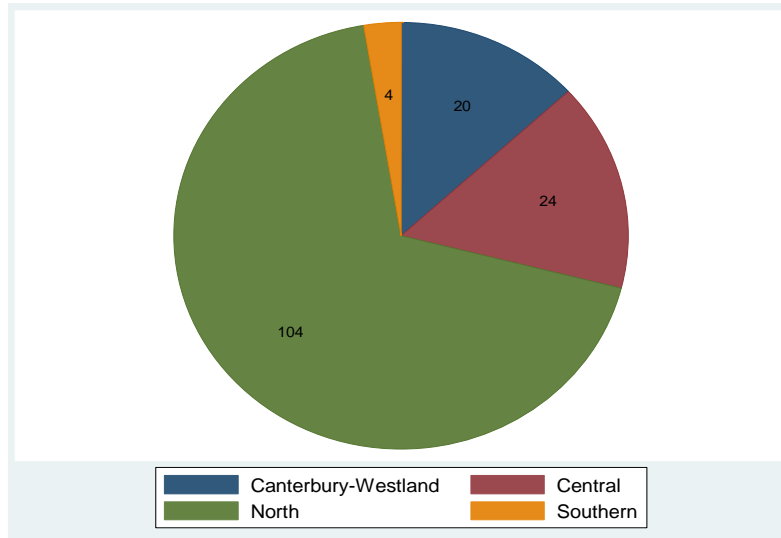
Interviews were conducted with firms across the four business regions in New Zealand. The majority of companies who participated in the research are based in the North region (68 per cent), followed by Central (16 per cent) and Canterbury-Westland (13 per cent)²⁵. Only a negligible portion of interviews (3 per cent) came from the Southern region (Exhibit 6).

²⁴ LSE defines medium firms 100 to 5000 employees, which we use for international benchmarking in this study. For other parts of this study, we broaden our sample to include firms employing 50 to 5000 employees. Note that Statistics NZ defines small firms as firm size less than 20 employees, medium size firms from 20 to 199 employees, and large as firms with employees 200 and greater.

²⁵ The definition of regions used in this study followed the classification used by Business New Zealand in its Performance of Manufacturing Index. The provinces contained within each region are as follows:

- Northern region: Northland, Auckland, Waikato, and Bay of Plenty;
- Central region: Gisborne, Hawke's Bay, Taranaki, Manawatu-Wanganui, Wellington, Tasman, and Nelson;
- Canterbury-Westland region: Marlborough, West Coast, and Canterbury;
- Southern region: Otago and Southland.

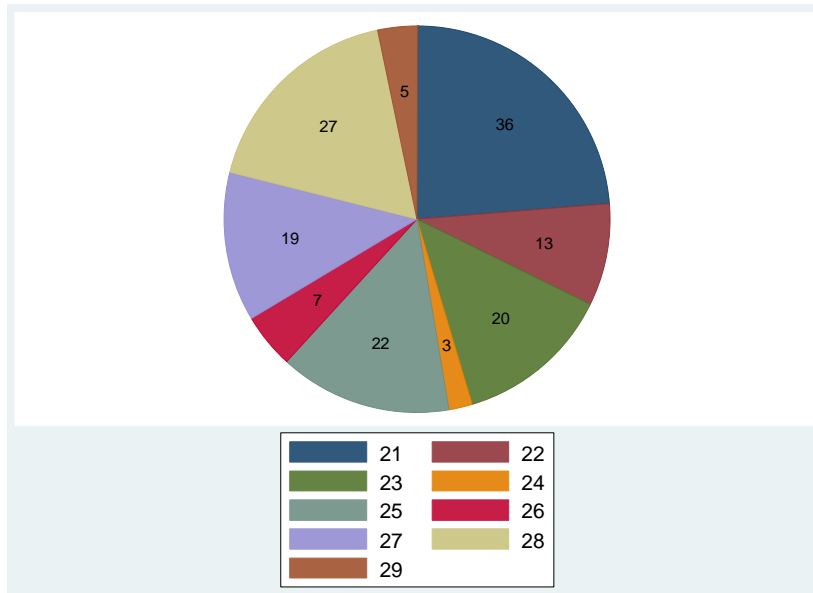
Exhibit 6 - Number of interviewed firms by region



Source: New Zealand management practices research.

Interviewed firms were grouped into their relevant Australia-New Zealand Standard Industrial Classification (ANZSIC) manufacturing industry sectors²⁶. The following break-down shows that almost a quarter of the interviewed firms engage in Food, Beverage and Tobacco Manufacturing (ANZSIC 21), followed by 18 per cent of firms in Machinery and Equipment Manufacturing (ANZSIC 28). Approximately 14 per cent of firms belong to the Petroleum, Coal, Chemical Manufacturing Sector (ANZSIC 25) and another 13 per cent to Wood and Paper Product Manufacturing (ANZSIC 23) (Exhibit 7).

Exhibit 7 – Number of interviewed firms by ANZSIC manufacturing industry sectors



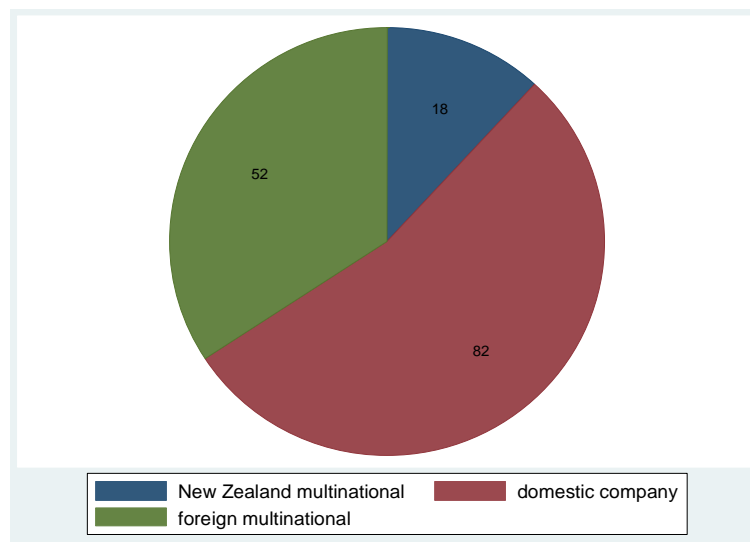
Source: New Zealand management practices research.

21: Food, Beverage and Tobacco Manufacturing; 22: Textile, Clothing, Footwear and Leather Manufacturing; 23: Wood and Paper Product Manufacturing; 24: Printing, Publishing and Recorded Media; 25: Petroleum, Coal, Chemical and Associated Product Manufacturing; 26: Non-Metallic Mineral Product Manufacturing; 27: Metal Product Manufacturing; 28: Machinery and Equipment Manufacturing; 29: Other Manufacturing.

²⁶ Based on the 1996 Australia-New Zealand Standard Industrial Classification (ANZSIC) developed by Statistics New Zealand and the Australian Bureau of Statistics. ANZSIC was subsequently updated in 2006.

Among all the interviewed firms, 34 per cent are foreign multinationals. 12 per cent are New Zealand multinationals, firms owned and headquartered in New Zealand but having production activities overseas. The remaining 54 per cent of the interviewed firms are purely domestic firms (Exhibit 8).

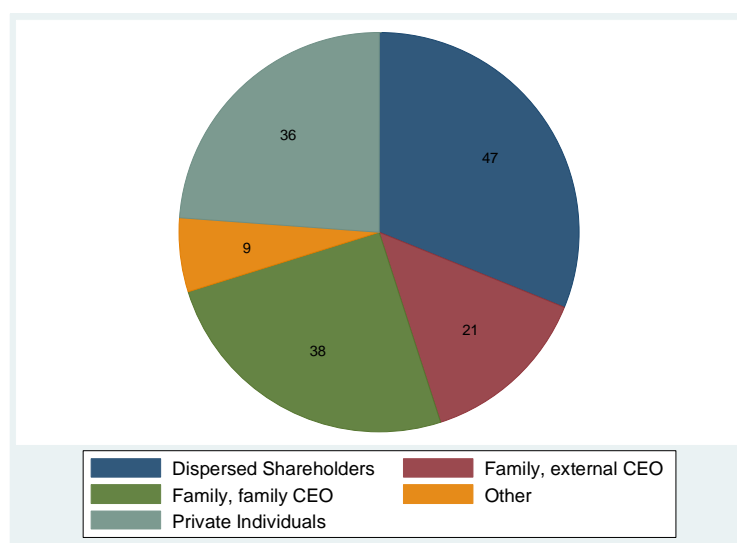
Exhibit 8 - Number of interviewed firms – MNCs vs. domestic firms break-up



Source: New Zealand management practices research

Looking at interviewed firms’ ownership structures, approximately 31 per cent are publicly listed companies, i.e. owned by dispersed shareholders. Family-owned firms with family CEOs account for approximately 25 per cent of the interviewed firms, while 14 per cent are family-owned firms run by an external CEO. Approximately 24 per cent are owned by private individuals and the remaining 6 per cent have ‘other’ ownership structures ranging from private equity firms to cooperatives (Exhibit 9).

Exhibit 9 - Number of interviewed firms by ownership types



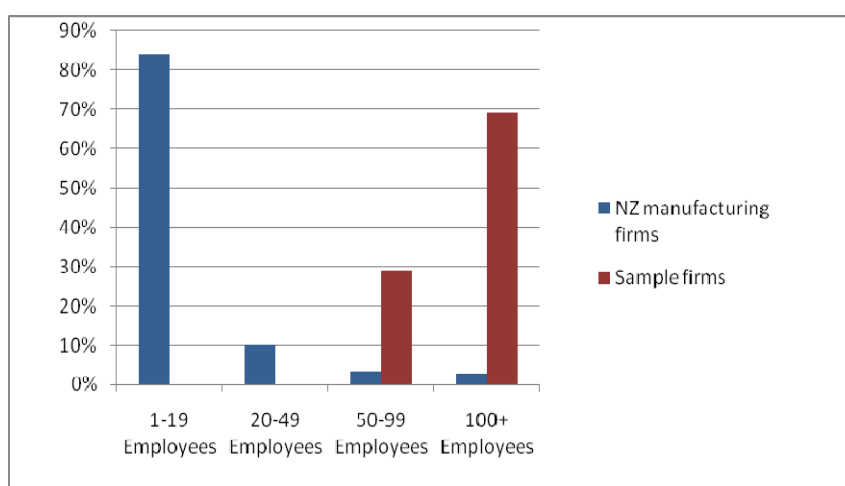
Source: New Zealand management practices research.

3.2 Demographics of the firms in New Zealand manufacturing sector

Comparing the distribution of manufacturing firms within the sample with those in the overall New Zealand manufacturing sector provides an indication of how the results of the research can be applied to the sector as a whole. This comparison uses relevant data from Statistics NZ on manufacturing sector demographics²⁷.

Medium and large-sized firms make up a small proportion of the New Zealand manufacturing sector, with small-sized firms dominating the landscape of New Zealand manufacturers²⁸. However, this study did not include small size firms. Hence, the survey is likely to be more representative of medium and large NZ manufacturers than it is of the sector as a whole (Exhibit 10).

Exhibit 10 - Sample firms vs. NZ manufacturing sector by firm size



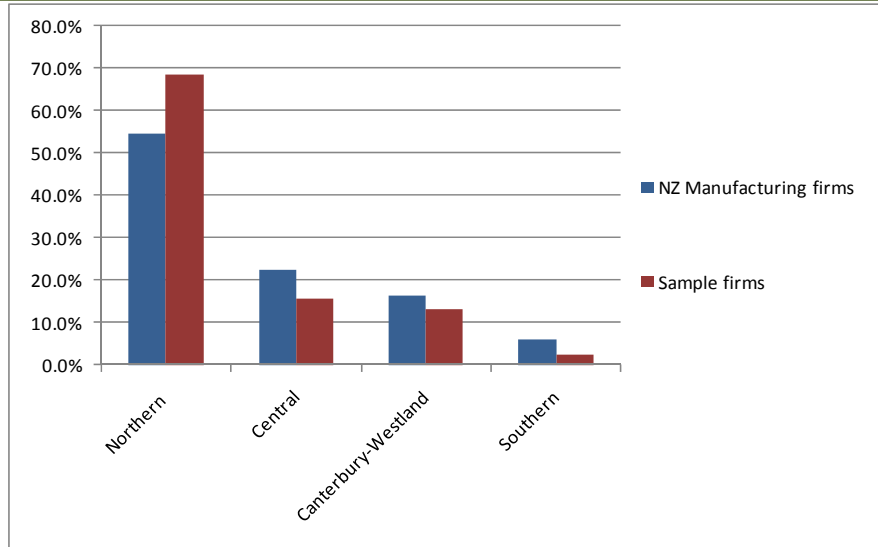
Source: New Zealand management practices research; Statistics NZ Business Demography Tables, http://www.stats.govt.nz/methods_and_services/access-data/tablebuilder/business-statistics.aspx
FTEs: Full-time employees

The distribution of the sample firms across the four New Zealand regions shows that the sample is broadly representative of the overall spread of New Zealand manufacturing firms across these locations (Exhibit 11).

²⁷Statistics New Zealand, Business Demography Tables, February 2009. Available at http://www.stats.govt.nz/methods_and_services/access-data/tablebuilder/business-statistics.aspx

²⁸Statistics NZ, Business Demography Tables, "Employment size groups for enterprises", http://www.stats.govt.nz/methods_and_services/access-data/tablebuilder/business-statistics.aspx.

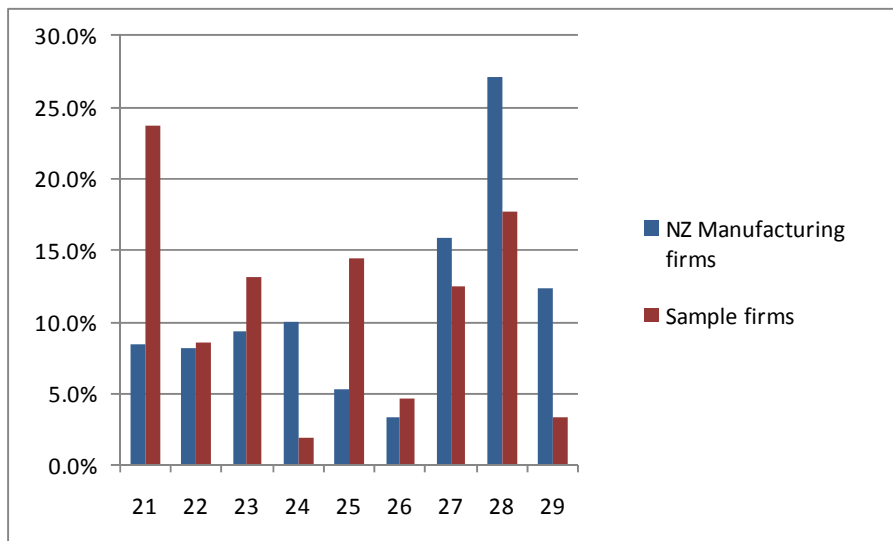
Exhibit 11 - Distribution of sample firms vs. NZ manufacturing firms across regions



Source: New Zealand management practices research; Statistics NZ Business Demography Tables, "Industry by area unit", http://www.stats.govt.nz/methods_and_services/access-data/tablebuilder/business-statistics.aspx.

The sample represents all ANZSIC manufacturing industry sectors (Exhibit 12). Some sectors – notably Food, Beverage and Tobacco Manufacturing (ANZSIC 21) and Petroleum, Coal, Chemical & Associated Product Manufacturing (ANZSIC 25) – were overrepresented in the sample. Others, including Printing, Publishing and Recorded Media (ANZSIC 24) and Machinery and Equipment Manufacturing (ANZSIC 28) were underrepresented.

Exhibit 12 - Distribution of sample firms vs. NZ manufacturing firms by ANZSIC manufacturing industry sectors



Source: New Zealand management practices research; Statistics NZ Enterprise count by ANZSIC sub-class, http://www.stats.govt.nz/methods_and_services/access-data/tablebuilder/business-statistics.aspx.

3.3 Data limitations in the sampling frame

The economic analysis is limited to the subset of firms with 50 or more employees that have accounting and employment data available for any year between 2004 and 2008²⁹. The majority of the available data is from Dun and Bradstreet, although the ORBIS database contained data on 11 firms. However, most firms do not have any accounting data available for any year, and the rest do not have data available for all years in this range.

Exhibit 13 summarises the number of firms with data available and provides some descriptive statistics. The firms with accounting data available tend to be generally better managed than those without. This has implications for interpreting the results as many poorly managed firms are not included in the analysis³⁰. As such the data quality has its limitations and the results are to be interpreted cautiously.

Exhibit 13 - Number of firms with data available as well as some descriptive statistics

Data	Number of firms with data for at least one year	Total number of firm year observations in sample frame	Average number of years data is available	Average Value of the respective dataset
Number of Employees	148	665	4.5	224
Sales Revenue	58	164	2.8	\$171,493,200
Capital	51	154	3.0	\$75,665,070 ³¹
Profit	51	155	3.0	\$6,642,771

Source: New Zealand management practices research.

4 Good management makes economic sense

Earlier global research has found strong relationships between management and productivity across different countries and cultures³². This holds true in the context of New Zealand firms too as effective management practices are associated with higher productivity and output within New Zealand firms. The results of the analysis demonstrate a significant positive association between New Zealand management practices and various firm productivity performance indicators particularly, labour productivity measured using profit per employee, firm sales and number of employee (Exhibit 14)³³.

²⁹ A further 6 outlier observations are excluded from the final analysis.

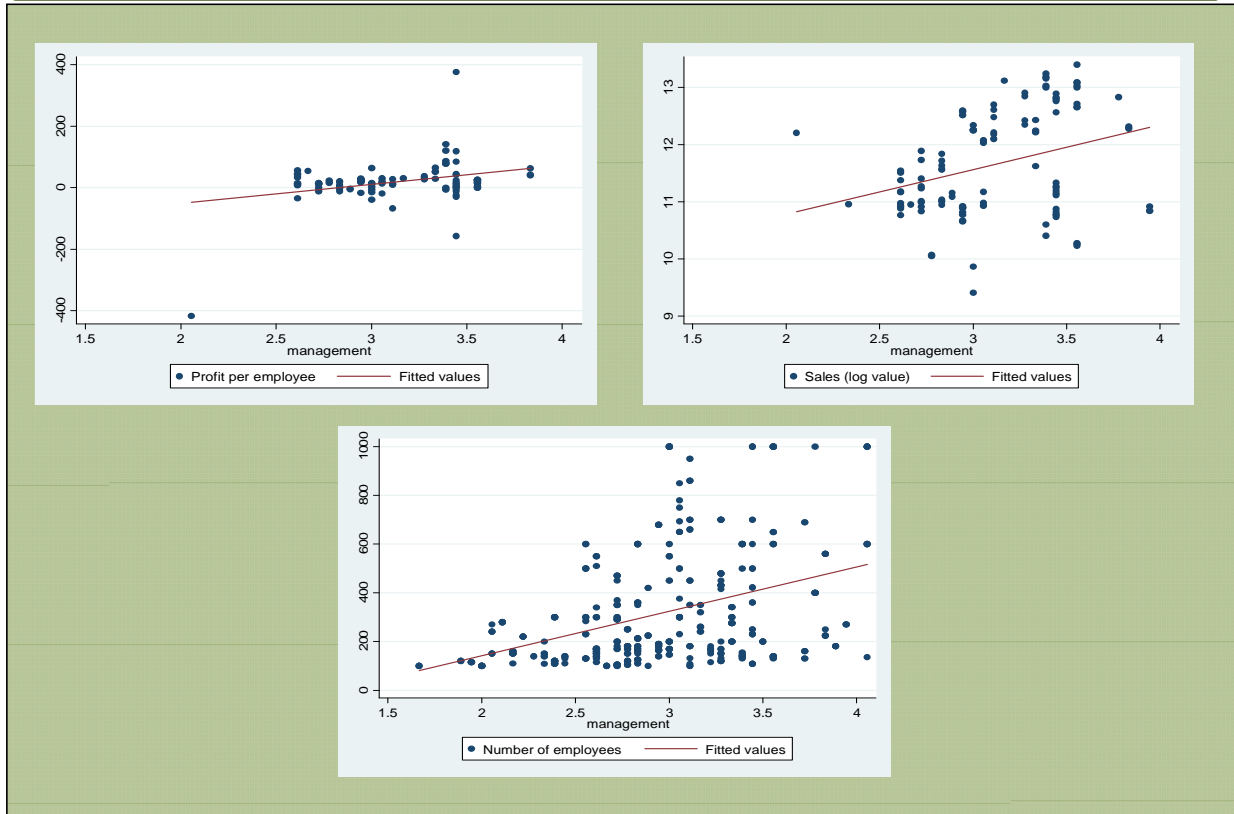
³⁰ The mean management score for firm with sales data available is 3.02, compared to 2.74 for those without sales data available, The difference is significant at the $p < 0.01$ level.

³¹ Capital is measured using Property, Plant and Equipment.

³² Nick Bloom, Stephen Dorgan, John Dowdy, John Van Reenen, "Management Practice & Productivity: Why they matter?", *Management Matters*, Nov 2007, p. 5

³³ The direct association of the management score with profit per employee or firm sales is significant at less than 5% level, and with the number of employees at less than 1% level.

Exhibit 14 - Management practice score correlates well with various productivity indicators



Note: Panel data for the period 2004-2008 for New Zealand firms with accounting data available and employees > 100 and < 5,000³⁴

Of particular significance is the finding that management practices are an important factor for explaining firm productivity in New Zealand. In the context of this research, a one point increase in the management score refers to one point in our scoring grid; improvements in any or all of the eighteen identified management dimensions on the scoring grid can help achieve a one point increase in the overall management score. The New Zealand results show better managed firms are likely to be more productive, larger, and have greater sales. The regressions above suggest that a one point increase in the management score is associated with an increase in profit per employee of \$45,787, a 17.1% increase in sales, and a 29.9% increase in the number of employees. These results are consistent with findings from other international research³⁵.

Management practices are also shown to have a relatively larger positive association with firm sales, relative to the association with labour or capital investments. The relative output of a change in the management score from the 25th percentile to the 75th percentile (which is a movement from an average management score of 2.5 to 3.2) is equivalent to a 41% increase in

³⁴ Econometric analysis (discussed further in the technical report) reveals that these positive associations are robust to the exclusion of outlier observations and the inclusion of controls such as region, industry and other factors which have been shown to explain productivity. Analysis used:

- Panel data covering interviewed firms across the 2004-2008 financial years; and
- Graphs including the line of best fit.

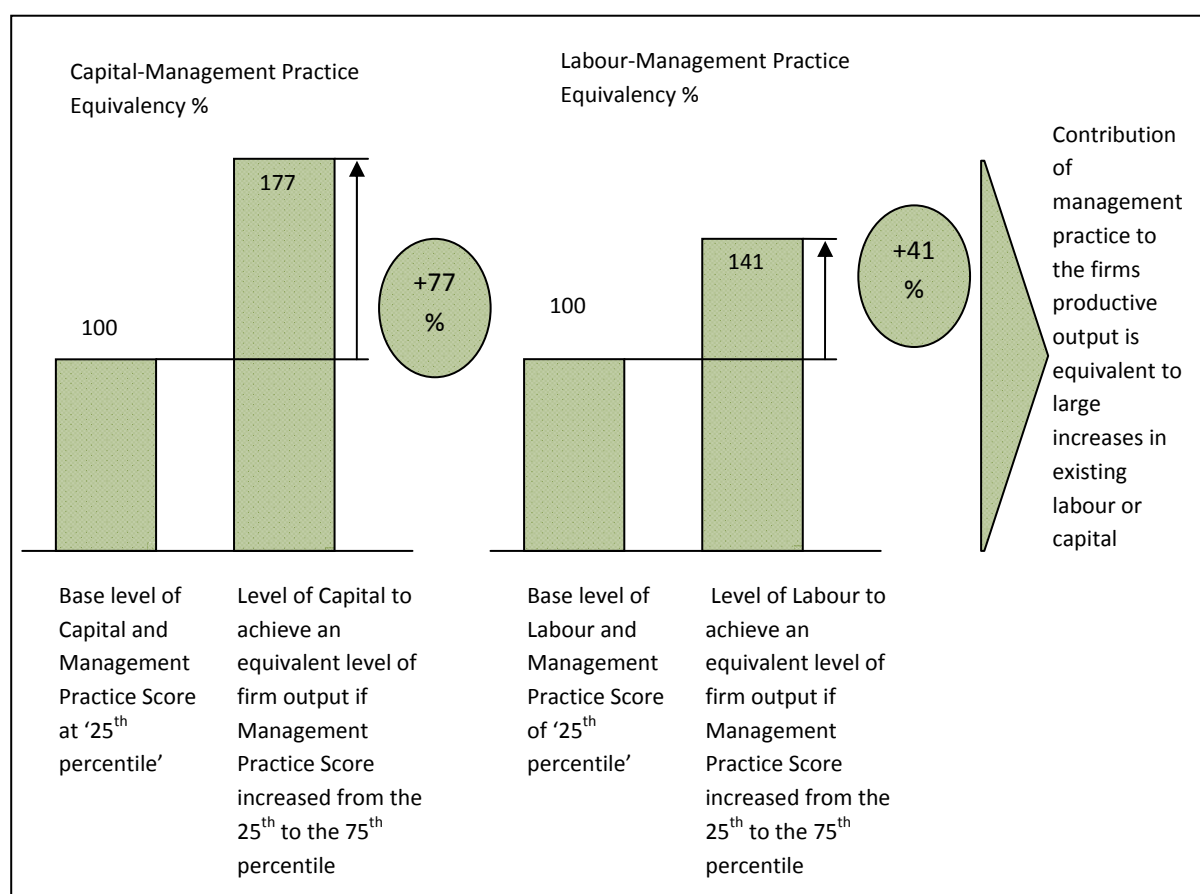
Relationships between management score and profit per employee and sales were statistically significant at the 5% confidence level, while the relationship between management score and employment was significant at the 1% confidence level.

³⁵ Nick Bloom, Stephen Dorgan, John Dowdy, John Van Reenen, "Management Practice & Productivity: Why they matter?", *Management Matters*, Nov 2007, p. 5; Management Matters in Australia: Just how productive are we?, November 2009, Department of Innovation, Industry, Science and Research, Australia <http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>; Management Matters, Working paper 12, March 2009 Institute of Competitiveness and prosperity, Canada.

the labour force or a 71% increase in invested capital (Exhibit 15)³⁶. This result for invested capital, which is high compared with other surveyed countries, is likely to be the result of limitations in availability of firm accounting data used in the analysis. While the result suggests that New Zealand's capital productivity is relatively low compared with some other countries, other research suggests that it is not drastically out of line with other countries' capital productivity³⁷.

The relationship between management practices and sales output for New Zealand manufacturing firms is economically significant even though the associations are not necessarily causal. Better management may allow firms to improve their operational practices and use their human and fixed capital more effectively. If that is the case, manufacturers may be able to cost-effectively enhance productivity per employee by investing in management practices as an alternative to hiring more employees or directly investing in fixed capital.

Exhibit 15 - Management Practice – Labour and Capital Equivalency Association



Note: This analysis of the relative association between Management Practices and Capital or Labour is done based on the method used in Bloom, Dorgan, Dowdy and Van Reenen (2007)³⁸.

³⁶ Details of how the management-labour equivalency and management-capital equivalency factors are calculated are detailed below Exhibit 14. These figures must be interpreted with caution, as the associations from which they are calculated may not be causal; and the results are based on a limited subset of firm, for which accounting data was available.

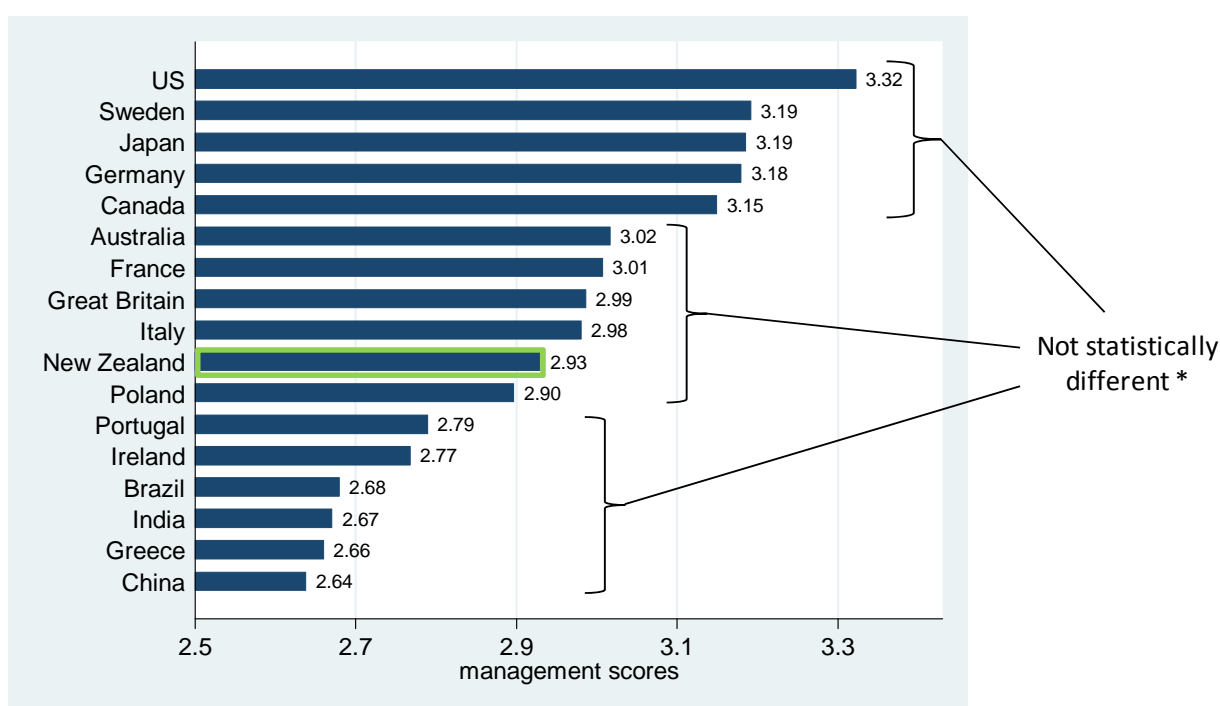
³⁷ Paul Schreyer, "International comparisons of levels of capital input and productivity", *OECD/Ivie/BBVA workshop on productivity measurement*, Madrid, 17-19 October 2005. See also Geoff Mason and Matthew Osborne, "Productivity, Capital-Intensity and Labour Quality at Sector Level in New Zealand and the UK", New Zealand Treasury Working Paper 07/01, March 2007.

³⁸ To calculate the management-labour equivalency and management-capital equivalency, they calculate the relative association of each of the factors. Slope coefficients are estimated using an OLS regression model which includes controls for country, sector, employees, skills, hours worked and other factors which have been shown to explain productivity. To calculate the relative association, they compare the slope coefficient of the management score to the slope coefficient of either labour or capital. As we are interested in equivalent difference for a change in the management score from the 25th to the 75th percentiles (2.5 and 3.2 respectively), we multiply the difference of 0.72 by the raw Equivalency score.

5 New Zealand managers are middling by global standards

New Zealand management practices rank tenth among the seventeen countries that have participated in this research so far. It had an overall score of 2.93 for an internationally comparable sample of manufacturing firms with 100 to 5000 employees. The countries studied fall into three bands or tiers according to their overall management scores. New Zealand falls on the boundary of the middle and lower tier of countries in terms of its management performance. It is statistically on par with Australia, France, Great Britain, Italy and Poland. However, New Zealand significantly lags behind the best performing country – the US – and also falls short of the other four other top tier countries - Japan, Germany, Canada and Sweden (Exhibit 16). Notably, the top tier countries - the US and Sweden - also feature amongst the global top four competitive economies³⁹. Therefore, enhancing its management practices emerges as a critical area of focus if New Zealand is to improve its economic performance and competitive positioning.

Exhibit 16 - Overall management score by country – A global comparison



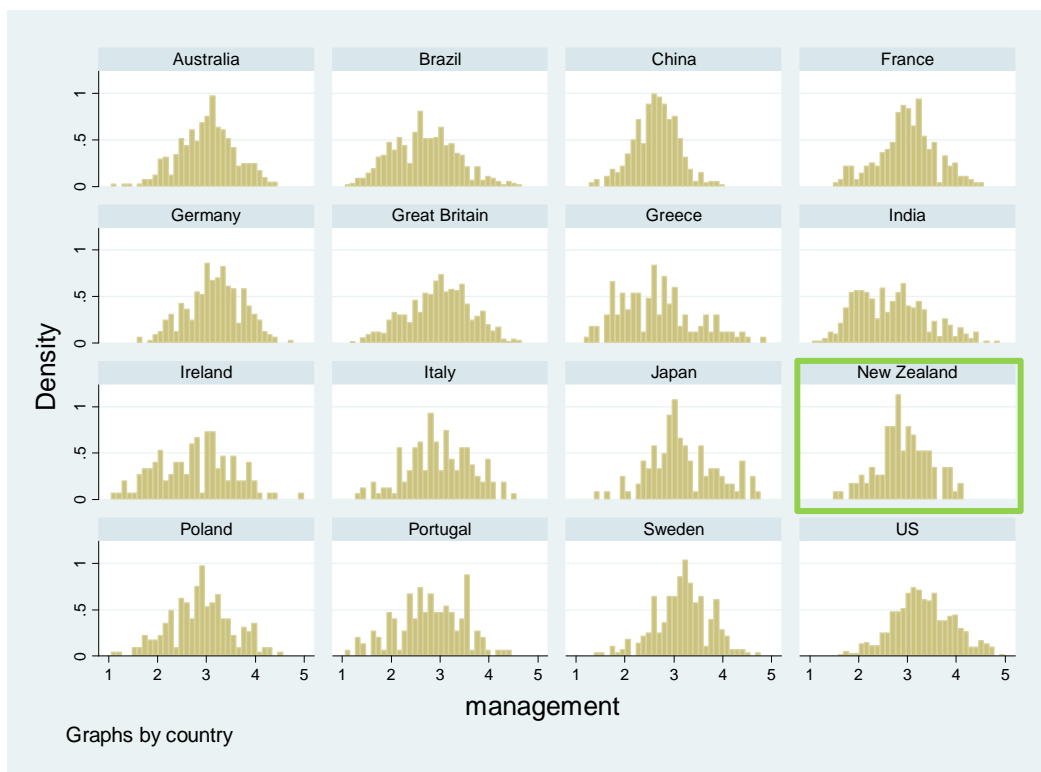
* At 10 per cent significance level.

Source: Management Matters dataset. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; New Zealand management practices research; Management Matters in Australia: Just how productive are we?, November 2009, Department of Innovation, Industry, Science and Research, Australia <http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>; Management Matters, Working paper 12, March 2009 Institute of Competitiveness and prosperity, Canada.

Management practices in New Zealand firms are fairly homogenous, and New Zealand has a smaller proportion of poorly managed firms (a shorter tail of poor performers) relative to some other competitor countries (Exhibit 17).

³⁹ World Economic Forum's Global Competitiveness Report 2007-08.
<http://www.weforum.org/en/initiatives/gcp/Global%20Competitiveness%20Report/index.htm>.

Exhibit 17 - Overall management practices density for each country



* At 10 per cent significance level.

Note: Canada is excluded from this statistical analysis as the firm-level data of Canada are not available.

Source: Management Matters dataset. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; New Zealand management practices research; Management Matters in Australia: Just how productive are we?, November 2009, Department of Innovation, Industry, Science and Research, Australia <http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>.

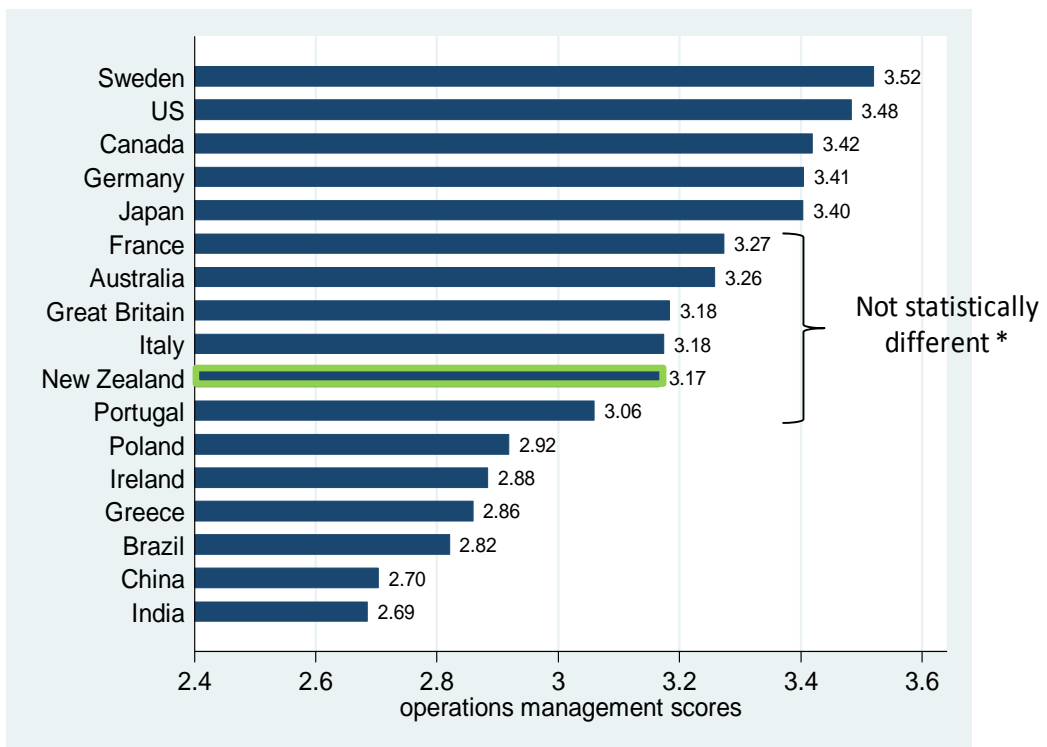
The distribution of overall management scores also indicates that within New Zealand, more firms are poorly managed than well managed i.e. more firms have an average management score of less than 2 as compared to those with an average management score greater than 4. Earlier global research shows that it is the 'tail' of poor performers, and rather than the outstanding performers, which largely determine a country's overall management performance⁴⁰. This implies that despite having a relatively shorter 'tail' of poor performers compared to some other countries, addressing the critical mass of badly managed firms within the country still remains the priority for enhancing New Zealand's overall management performance.

5.1 New Zealand's management strengths and areas for improvement

New Zealand is ranked tenth out of seventeen countries in the sphere of **operations management**. It scored 3.17 in this category. Sweden is in the lead, followed by the US, Canada, Germany and Japan. New Zealand is not statistically different from France, Australia, Great Britain, Italy and Portugal in terms of operations management practices, once again placing itself amidst the second tier of countries on a global basis (Exhibit 18). In short, there is room for substantial improvement if New Zealand is to catch up with the best performer.

⁴⁰ Nick Bloom, Stephen Dorgan, John Dowdy, John Van Reenen, "Management Practice & Productivity: Why they matter?", *Management Matters*, Nov 2007, p. 6.

Exhibit 18 - Operations management score by country – A global comparison



* At 10 per cent significance level.

Source: Management Matters dataset. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; New Zealand management practices research; Management Matters in Australia: Just how productive are we?, November 2009, Department of Innovation, Industry, Science and Research, Australia <http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>; Management Matters, Working paper 12, March 2009 Institute of Competitiveness and prosperity, Canada.

Of the seven key elements within the area of **operations management**, New Zealand fares midway in most of the operations management practice dimensions (Exhibit 19). Yet, it is at statistical parity with the global best performer in two dimensions - 'Adoption of lean manufacturing practices' and 'Rationale for adopting lean operations'. However, New Zealand firms perform statistically worse relative to the global top nations in the remaining dimensions (Exhibit 24).

Exhibit 19 - Operations management performance by each dimension

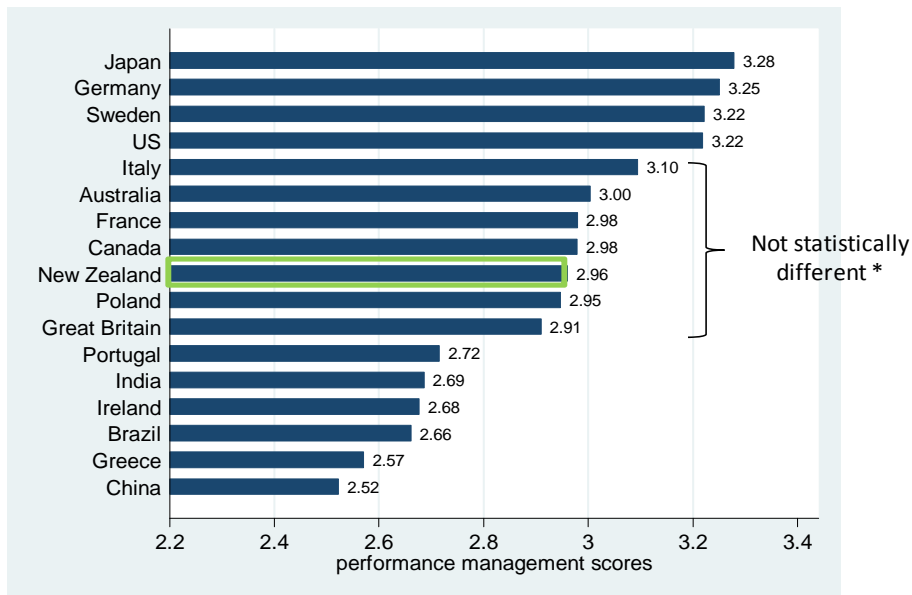
	New Zealand's global ranking (out of 16 countries)	Global best performer (out of 16 countries)
Operations Management		
Overall score	10	Sweden
Adoption of Lean Manufacturing <i>Best practice</i> : All major aspects of Lean have been implemented <i>Worst practice</i> : Other than just-in-time, no other aspects of Lean have been introduced	5	US
Rationale for the adoption <i>Best practice</i> : Lean was introduced to meet business objectives <i>Worst practice</i> : Lean was introduced to catch up to competitors	6	Sweden
Process problem documentation <i>Best practice</i> : Exposing problems is integral to individuals' responsibilities rather than ad hoc solutions <i>Worst practice</i> : No process improvements are made when problems occur	11	Sweden
Operations Performance tracking <i>Best practice</i> : Performance is continuously tracked and communicated to all staff using a range of visual tools <i>Worst practice</i> : Tracking is ad hoc, and measures being tracked do not indicate directly if overall business objectives are being met	7	Sweden
Operations Performance review <i>Best practice</i> : Performance is continuously reviewed, based on indicators tracked; follow-up ensures continuous improvement <i>Worst practice</i> : Performance is reviewed infrequently and only success or failure is noted	10	Sweden
Operations Performance dialogue <i>Best practice</i> : Regular performance conversations focus on addressing root causes. Purpose, agenda, and follow-up steps are clear to all <i>Worst practice</i> : Relevant data are often not present at meetings or discussion is based on data that is not meaningful. Agenda and purpose are not clear	9	Japan
Consequence management <i>Best practice</i> : Failure to achieve agreed targets drives retraining or moving individuals around. <i>Worst practice</i> : Failure to achieve agreed targets does not carry any consequences	7	US

Note: Canada is excluded from the statistical analysis of individual questions as the firm-level data of Canada are not available.

Source: Management Matters dataset. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; New Zealand management practices research; Management Matters in Australia: Just how productive are we?, November 2009, Department of Innovation, Industry, Science and Research, Australia <http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>

In the area of **performance management**, New Zealand ranks ninth among seventeen countries. It scored 2.96 in this category. It is currently on par with the second tier of countries, including Italy, Australia, France, Canada, Poland and Great Britain, but it trails significantly behind the top tier nations. Japan is globally the best performer in this area, and Germany, Sweden and the USA also clearly distinguish themselves at the top (Exhibit 20).

Exhibit 20 - Performance management score by country – A global comparison



* At 10 per cent significance level.

Source: Management Matters dataset. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; New Zealand management practices research; Management Matters in Australia: Just how productive are we?, November 2009, Department of Innovation, Industry, Science and Research, Australia <http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>; Management Matters, Working paper 12, March 2009 Institute of Competitiveness and prosperity, Canada.

A more detailed analysis of the six dimensions within the **performance management** area reveals notable variations in New Zealand’s ranking in the global context (Exhibit 21). New Zealand is statistically equal to the global best performer in only one of these dimensions – ‘Clarity of goals’. Across all other five practices, which encompass the types, quality, interconnection, and time-horizon of goal settings, New Zealand has significant room for improvement, as it performs statistically worse than the top nation (Exhibit 24).

Exhibit 21 - Performance management performance by each dimension

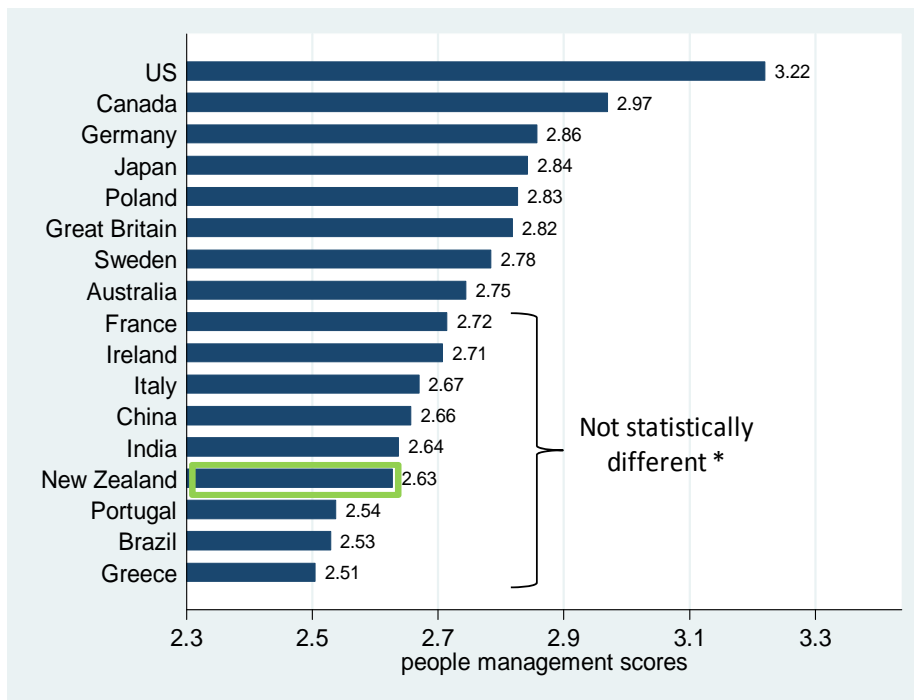
	New Zealand's global ranking (out of 16 countries)	Global best performer (out of 16 countries)
Performance Management		
Overall score	9	Japan
Types of goals <i>Best practice</i> : Goals are a balance of financial and non-financial goals <i>Worst practice</i> : Goals are exclusively financial or operational	11	Japan
Interconnection of goals <i>Best practice</i> : Corporate goals increase in specificity as they cascade through the business units <i>Worst practice</i> : Individual workers are not aware of how their contribution is linked to corporate goals	5	US
Time horizon <i>Best practice</i> : Short-term goals are set so that they become a staircase to reach the long-term goals <i>Worst practice</i> : Top management's main focus is on short term goals	10	Sweden
Setting stretch goals <i>Best practice</i> : Goals are demanding for all divisions, and are grounded in solid economic rationale <i>Worst practice</i> : Goals are either too easy or impossible to achieve	7	Sweden
Clarity of goals <i>Best practice</i> : Performance measures are well defined and well communicated; worker performance is made public to induce competition <i>Worst practice</i> : Performance measures are complex and not clearly understood; worker performance is not made public	5	Japan

Note: Canada is excluded from the statistical analysis of individual questions as the firm-level data of Canada are not available.

Source: Management Matters dataset. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; New Zealand management practices research; Management Matters in Australia: Just how productive are we?, November 2009, Department of Innovation, Industry, Science and Research, Australia <http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>.

People management is the weakest area for New Zealand manufacturers with the country ranking fourteenth among participating countries. It scored 2.63 in this category. The USA, Canada and Germany deliver exceptional performance in the area of people management, and countries such as Japan, Poland, Great Britain, Sweden and Australia are also superior to New Zealand. In this sphere, New Zealand is in statistical parity with France, Ireland, Italy and developing counties such as Brazil, India and China (Exhibit 22).

Exhibit 22 - People management score by country – A global comparison



* At 10 per cent significance level.

Source: Management Matters dataset. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; New Zealand management practices research; Management Matters in Australia: Just how productive are we?, November 2009, Department of Innovation, Industry, Science and Research, Australia <http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>; Management Matters, Working paper 12, March 2009 Institute of Competitiveness and prosperity, Canada.

While New Zealand has a low rank in almost all six dimensions of **people management**, its practices around addressing poor performers, promoting and retaining high performers trail the most in terms of global ranking (Exhibit 23). New Zealand is statistically worse than the global best across all the people management practices (Exhibit 24).

Exhibit 23 - People management performance by each dimension

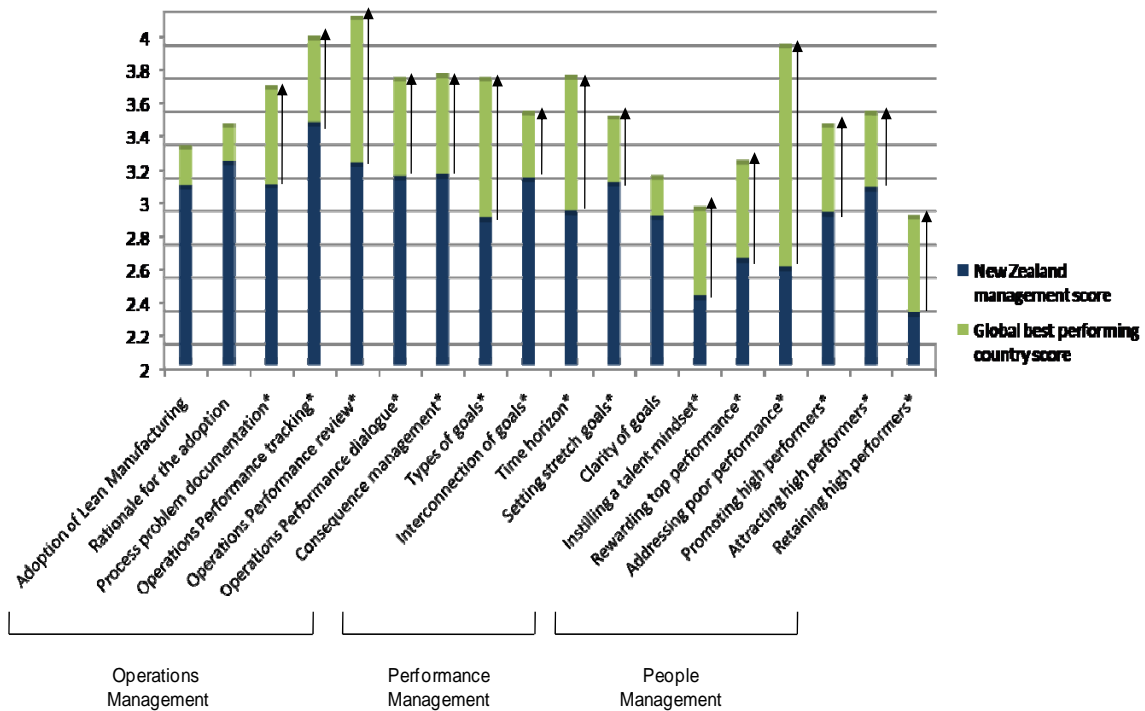
	New Zealand's global ranking (out of 16 countries)	Global best performer (out of 16 countries)
People Management		
Overall score	14	US
Instilling a talent mindset <i>Best practice</i> : Senior managers are evaluated and held accountable on the strength of the talent pool they actively build <i>Worst practice</i> : Senior management do not communicate that attracting, retaining, and developing talent is a top priority	8	US
Rewarding top performance <i>Best practice</i> : The firm provides ambitious stretch targets with clear performance related accountability and rewards <i>Worst practice</i> : People within the firm are rewarded equally irrespective of performance level	8	US
Addressing poor performance <i>Best practice</i> : Poor performers are moved to less critical roles or out of the company as soon as weaknesses are identified <i>Worst practice</i> : Poor performers are rarely removed from their positions	16	US
Promoting high performers <i>Best practice</i> : Top performers are actively identified, developed, and promoted <i>Worst practice</i> : People are promoted primarily upon the basis of tenure	13	US
Attracting high performers <i>Best practice</i> : The firm provides a unique value proposition to encourage talented people to join the company instead of the competitors <i>Worst practice</i> : Competitors offer stronger reasons for talented people to join their companies	8	Japan
Retaining high performers <i>Best practice</i> : Managers do whatever it takes to retain top talent <i>Worst practice</i> : Managers do little to try and keep the top talent	14	US

Note: Canada is excluded from the statistical analysis of individual questions as the firm-level data of Canada are not available.

Source: Management Matters dataset. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; New Zealand management practices research; Management Matters in Australia: Just how productive are we?, November 2009, Department of Innovation, Industry, Science and Research, Australia <http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>.

In summary, New Zealand performs statistically worse than the global best performing nation in a number of specific management dimensions within the broad areas of operations, performance and people management which are indicated by vertical arrows in the chart below. It also shows that the extent to which management practices trails in each of the eighteen dimensions varies considerably too. (Exhibit 24).

Exhibit 24 - Gaps in New Zealand management performance by each dimension



* New Zealand score statistically significantly different from the global best performing country's score, based on statistical analysis at 10 per cent significance level.

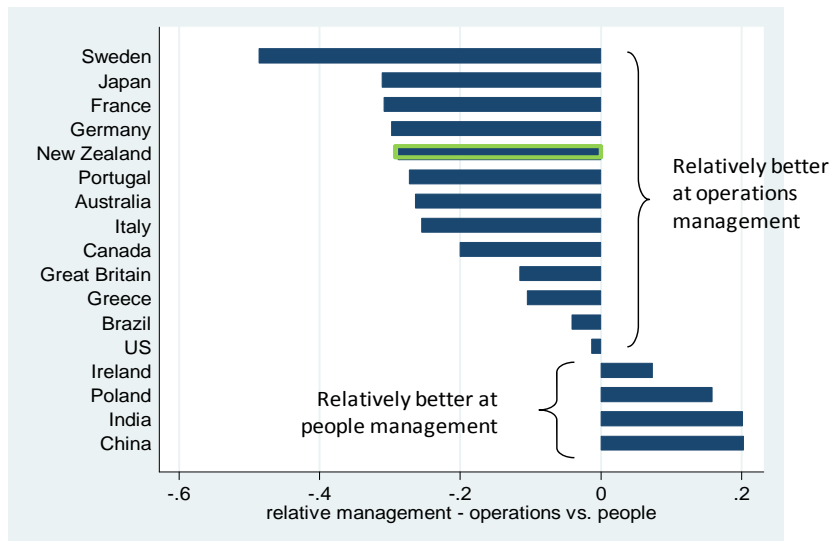
Note: Canada is excluded from the statistical analysis of individual questions as the firm-level data of Canada are not available
 Source: Management Matters dataset. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; New Zealand management practices research; Management Matters in Australia: Just how productive are we?, November 2009, Department of Innovation, Industry, Science and Research, Australia <http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>.

To bridge gaps with the **global best performing countries**, New Zealand manufacturing firms should focus on lifting some or all of these management practices indicated by vertical arrows. These cumulative efforts can improve the overall management performance in New Zealand firms and in turn positively influence the nation's economic prosperity.

5.2 Relative orientation of New Zealand management practices

In order to understand the cross-country management performance and New Zealand's relative standing even better, the relative orientation of New Zealand manufacturing enterprises is examined. From this analysis, it is evident that the New Zealand manufacturing firms are relatively more operations-oriented than people-oriented. This reiterates our previous finding that New Zealand firms are further away from global best practice in people management than in operations management (Exhibit 25).

Exhibit 25 - Country level relative management: operation vs. people

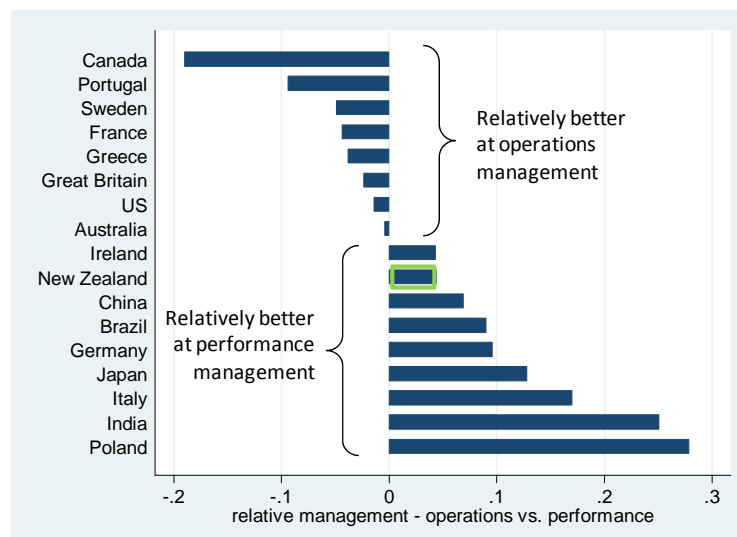


Note: the relative management operation vs. people is measured as the difference between the average score of the area of operation and of people, normalised using Z-score.

Source: Management Matters dataset. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; New Zealand management practices research; Management Matters in Australia: Just how productive are we?, November 2009, Department of Innovation, Industry, Science and Research, Australia <http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>; Management Matters, Working paper 12, March 2009 Institute of Competitiveness and prosperity, Canada.

On the other hand, New Zealand's orientation in performance management is marginally better than its operations management, showing that New Zealand firms tend to be relatively more focussed in the sphere of goals and targets management as compared to their operational processes (Exhibit 26).

Exhibit 26 - Country level relative management: operation vs. performance

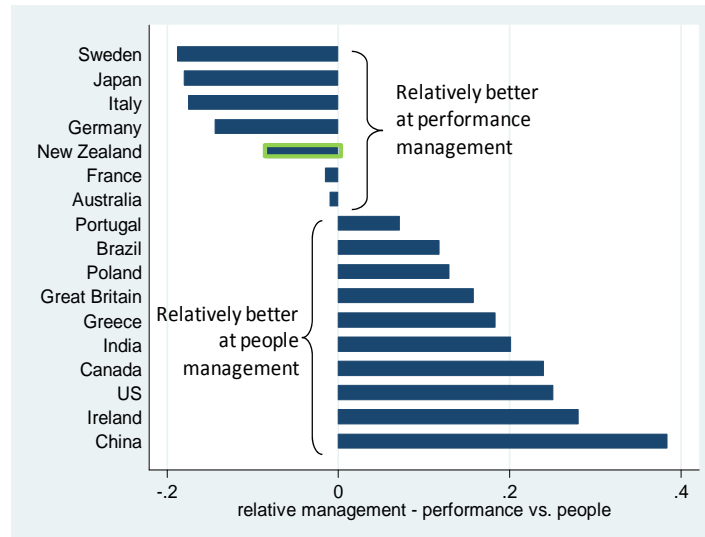


Note: the relative management operation vs. performance is measured as the difference between the average score of the area of operation and of performance, normalised using Z-score.

Source: Management Matters dataset. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; New Zealand management practices research; Management Matters in Australia: Just how productive are we?, November 2009, Department of Innovation, Industry, Science and Research, Australia <http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>; Management Matters, Working paper 12, March 2009 Institute of Competitiveness and prosperity, Canada.

Examining the third orientation, New Zealand is relatively better in the area of performance management vis-à-vis people management albeit not as emphatically as countries like Sweden and Japan (Exhibit 27).

Exhibit 27 - Country level relative management: people vs. performance



Note: the relative management people vs. target is measured as the difference between the average score of the area of people and of performance, normalised using Z-score.

Source: Management Matters dataset. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; New Zealand management practices research; Management Matters in Australia: Just how productive are we?, November 2009, Department of Innovation, Industry, Science and Research, Australia <http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>; Management Matters, Working paper 12, March 2009 Institute of Competitiveness and prosperity, Canada.

In conclusion, this relative orientation in pairs demonstrates that while operations and performance management improvements cannot be ignored, management of human capital is the area that requires most attention.

6 The domestic landscape of New Zealand management

The average overall management score for New Zealand manufacturing firms with 50 to 5000 employees is 2.85 (Exhibit 28). This score is slightly lower than the score used for international comparison shown in section 4 earlier due to the inclusion of smaller sized manufacturing firms (50 to 99 employees) in the analysis.

Operations management remains the best performing management area for New Zealand firms, with an average score of 3.09 (Exhibit 28). Ten per cent of all interviewed firms earned an operations management score above 4, with a maximum score of 4.57. Only five per cent of the firms scored less than 2, suggesting that most companies have effectively implemented modern systems and processes to manage their operations.

The spread of performance management scores is relatively more negatively skewed. Forty five per cent of firms had a score between 3 and 4, but five per cent of firms fared very poorly, scoring below 1.6. In all, New Zealand firms score an average of 2.85 in this area (Exhibit 28).

People management is a weak area for New Zealand manufacturers, who scored an average management score of only 2.58 in this sphere (Exhibit 28). While no firms scored above 4, about ten per cent of firms had a score below 2. This spread is indicative of the vast potential for improvement in this area.

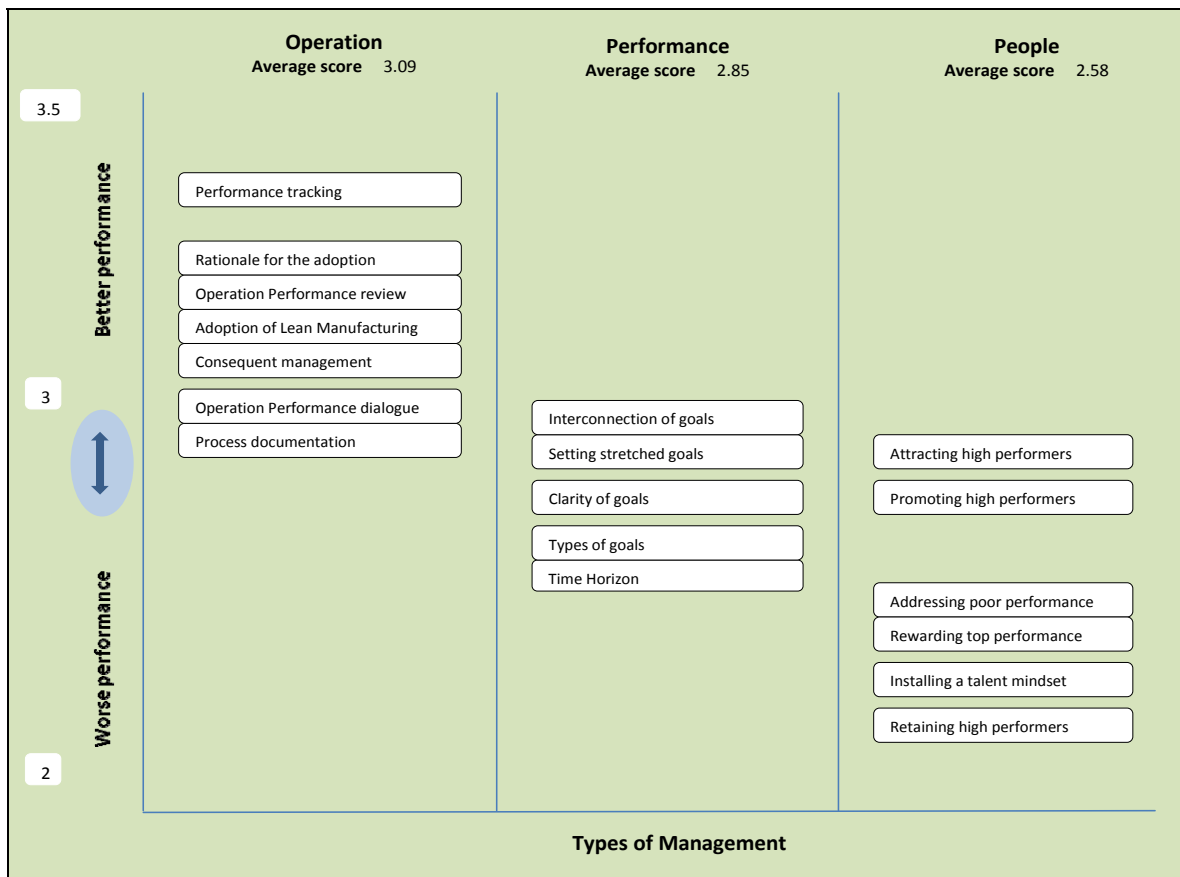
Exhibit 28 - New Zealand management scores

Variable	Obs	Mean	Std. Dev.	Min	Max
management	152	2.85	0.56	1.10	4.05
operations	152	3.09	0.70	1.00	4.57
performance	152	2.85	0.68	1.00	4.40
people	152	2.58	0.48	1.30	3.83

Source: New Zealand management practices research.

Delving deeper, there is a notable variation ranging from worse to better performance in the management performance of New Zealand firms across the eighteen dimensions of the three areas of management as depicted in Exhibit 29.

Exhibit 29 - Average management practices scores across the 18 dimensions



Source: New Zealand management practices research.

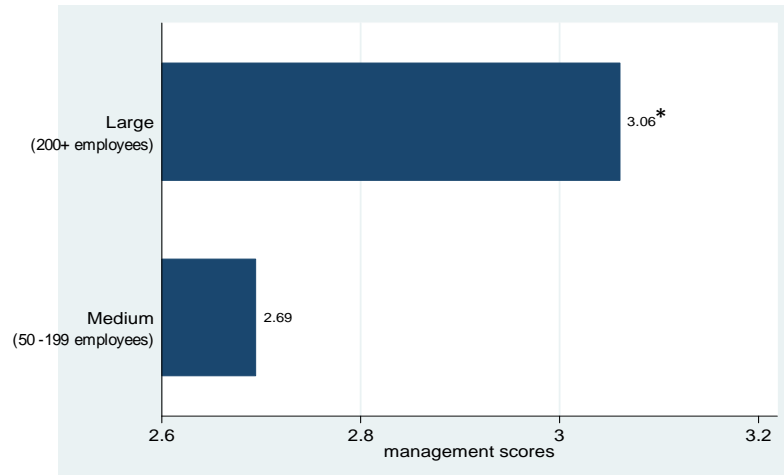
We now examine in greater detail the performance of New Zealand management from several perspectives. We compare medium (50-199 employees) and large (200+ employees) firms, and then compare firms belonging to the Deloitte 200 firms with the rest of the cohort. We also examine management practices by region and by industry. This analysis produces some interesting insights.

6.1 Firm size and management performance

Does firm size have an impact on management performance? The results of the analysis show that the large New Zealand firms perform considerably better than the medium firms in terms of their overall management capability (Exhibit 30)⁴¹. This result is statistically significant ($p < 0.05$). Firm size alone can explain 12 per cent of the variability of management scores within this sample.

⁴¹ Medium-sized firms have 50 to 199 employees and large-sized firms have above 200 employees. Note that Statistics NZ defines small firms as firm size less than 20 employees, medium size firms from 20 to 199 employees, and large as firms with employees 200 and greater.

Exhibit 30 - Overall management scores for medium and large-sized firms



*: Statistically different from the rest of the sample at 5 per cent significance level.

Source: New Zealand management practices research.

Large sized firms score statistically better than medium sized ones across all three management areas - operations, performance and people (Exhibit 31)

Exhibit 31 - Summary of scores – medium (50-199) and large-sized (200+) firms

Management score	New Zealand medium-sized firms	New Zealand large-sized firms	Difference is statistically significant
operations	2.91	3.33	√
performance	2.66	3.09	√
people	2.48	2.72	√

Note: Medium – 50 to 199 employees, Large – 200 and above employees

Source: New Zealand management practices research.

Furthermore, large-sized firms exhibit better management across all eighteen individual dimensions of management.

6.2 Comparing management practices of smaller firms with the rest of the cohort

As smaller firms ranging from 50–99 employees constitute a large proportion of manufacturing organisations in New Zealand⁴², the performance of management practices in this cohort is certain to significantly impact the overall productivity performance across the entire economy. These firms, which fall into the smaller end (50-99 employees) of Statistics New Zealand’s medium sized firm category, underperform firms with 100 or more employees across all management areas. The differences in scores between these two cohorts are statistically significant [overall and performance management ($p < 0.05$); operations and people management ($p < 0.10$)] (Exhibit 32). In addition, the management practices in this cohort of smaller firms are extremely varied and inconsistent.

⁴² *SMEs in New Zealand: Structure and Dynamics 2007*, (Ministry of Economic Development, 2007).

Exhibit 32 - Summary of scores – firm size 50–99 vs. the rest of the firms

Management score	New Zealand firms size 50-99	New Zealand firms size 100 and beyond	Difference is statistically significant
overall score	2.67	2.93	√
operations	2.91	3.17	√
performance	2.57	2.96	√
people	2.47	2.63	√

Source: New Zealand management practices research.

In conclusion, firm size is found to be strongly linked with management performance in New Zealand manufacturers. This is also the case in other countries globally, indicating that large companies are more likely to deploy good management practices than small companies⁴³. These findings are also valid at the regional level and the industry sector level within New Zealand. Our outcome is also commensurate with the findings of the Business Operations Survey conducted in 2005 in New Zealand which concluded that larger firms are more likely to have better business planning and goal-setting processes in place. The survey also showed that larger businesses adopted better systems for conducting regular competitor analysis and benchmarking than smaller businesses⁴⁴.

The New Zealand economy is predominantly composed of small and medium sized firms⁴⁵. According to a recent OECD review, “New Zealand has not succeeded in nurturing very large firms as some even small countries have managed to do in geographical locations. The lack of very large firms, both in manufacturing and service sector, has significant implications, including for the innovative performance and development opportunities of other firms but also for the innovation system as a whole”⁴⁶. Given that the firm size is correlated with superior management practices, this aspect of the New Zealand business economy is well worth investigating.

6.3 Management at leading New Zealand enterprises – Deloitte Top 200 firms

Every year, Deloitte ranks the best 200 New Zealand companies in terms of their performance. Of the 152 firms we interviewed, 19 of these firms were listed among the Deloitte Top 200 firms in 2008. These Deloitte listed firms scored notably higher on management practices. Their performance was statistically better than the rest of the firms [overall and performance management ($p < 0.05$); operations and people management ($p < 0.10$)] (Exhibit 33). Management practices among Deloitte 200 firms were also much more homogenous and consistent when compared to the rest of the cohort. This finding suggests that management talent is related to more successful businesses. However, the direction of this relationship is not clear, as it is possible that good firms attract good managers as much as good managers make good firms.

⁴³ Management Matters DIISR Presentation (Jan 2009) London School of Economics.

⁴⁴ *Business operations Survey 2005*, (Statistics New Zealand, Ministry of Economic Development, Ministry of Research, Science and Technology, 2005).

⁴⁵ *SMEs in New Zealand: Structure and Dynamics 2007*, (Ministry of Economic Development, 2007).

⁴⁶ *OECD Reviews of Innovation policy – New Zealand*, (Paris: OECD, 2007).

Exhibit 33 - Summary of scores – firms listed in Deloitte Top 200 vs. the rest of the firms

Management score	Deloitte listed interviewed firms	Remaining interviewed firms	Difference is statistically significant
overall score	3.10	2.83	√
operations	3.30	3.07	√
performance	3.24	2.80	√
people	2.75	2.56	√

Source: New Zealand management practices research.

Our analysis indicates that the variations in management performance across smaller firms and Deloitte-listed firms relative to the rest of the cohort are associated with key features within firms, which are summarised in Exhibit 34. Among the smaller firms (50-99 employees), the higher proportion of family-owned, private and domestic firms seems to be related to lower management scores. On the other hand, publicly listed firms and multinationals among the Deloitte-ranked firms seem to exhibit superior management practices than family-owned, private and domestic firms. Identical findings emerge when comparing medium firms with large sized ones.

Exhibit 34 - Summary of differences in management practices

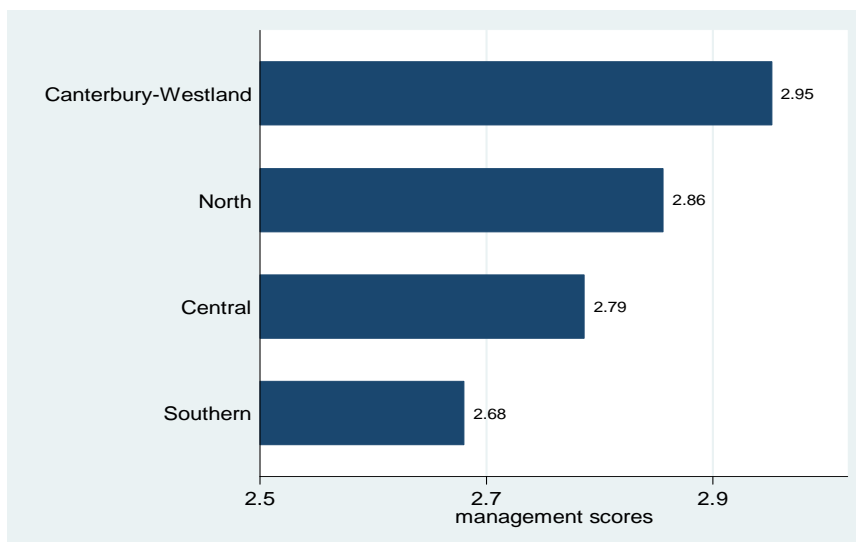
Scenario	Management score vis-à-vis rest of cohort	Ownership structure	MNC and domestic firm status
Medium firms (< 200 employees) vs rest of cohort (Large firms)	↓	↑ family firms ↓ publicly listed firms	↑ domestic firms ↓ MNC firms
Smaller firms (50-99 employees) vs rest of cohort	↓	↑ family firms & private firms ↓ publicly listed firms	↑ domestic firms ↓ MNC firms
Deloitte Top 200 performers vs rest of cohort	↑	↑ publicly listed firms ↓ family firms	↑ MNC firms ↓ domestic firms

Source: New Zealand management practices research.

6.4 New Zealand regional and industry sector performance

While the firms among the four regions appear to score varying in their management performance (Exhibit 35), the differences in management scores among the four regions are not statistically significant (Exhibit 36).

Exhibit 35 - Overall management scores by region



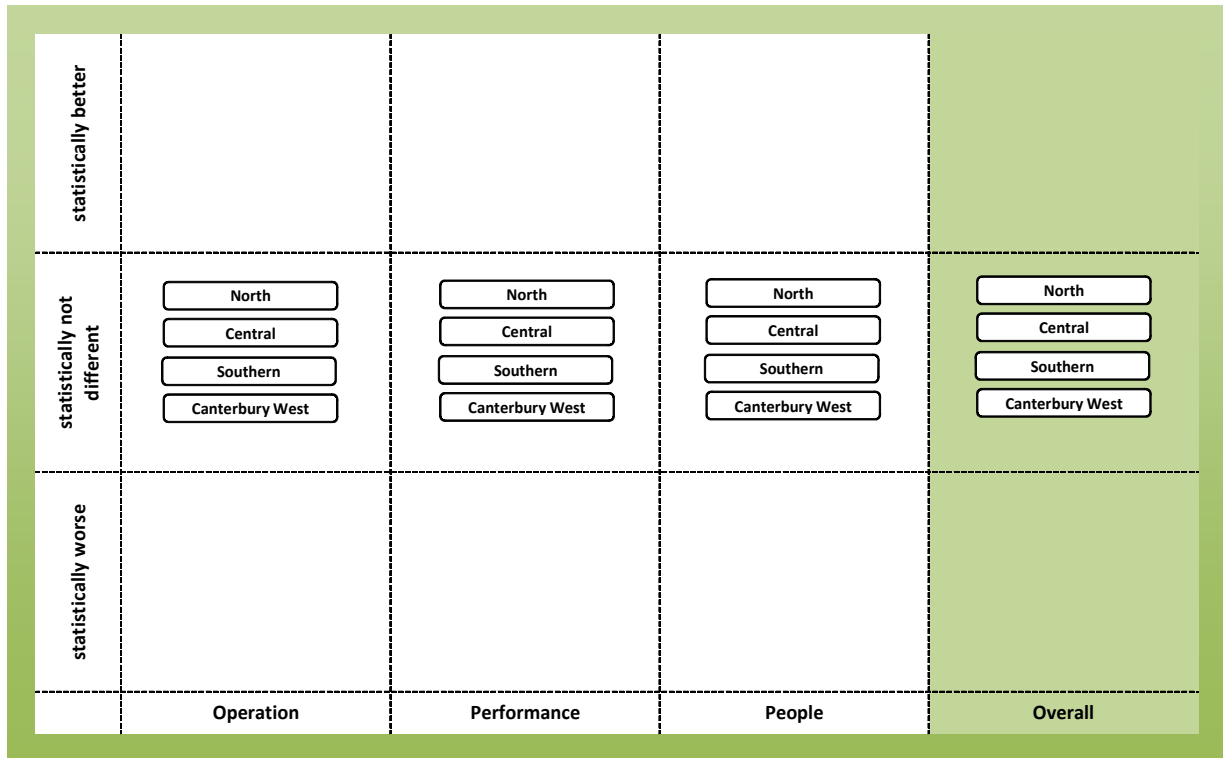
Source: New Zealand management practices research.

Note: Findings for Southern region should be taken with caution due to a small and negligible sample size.

The scores are not statistically significantly different.

The four regions are also statistically on par when compared across the three areas of operations, performance and people management (Exhibit 36).

Exhibit 36 - Relative state performance across the three management areas

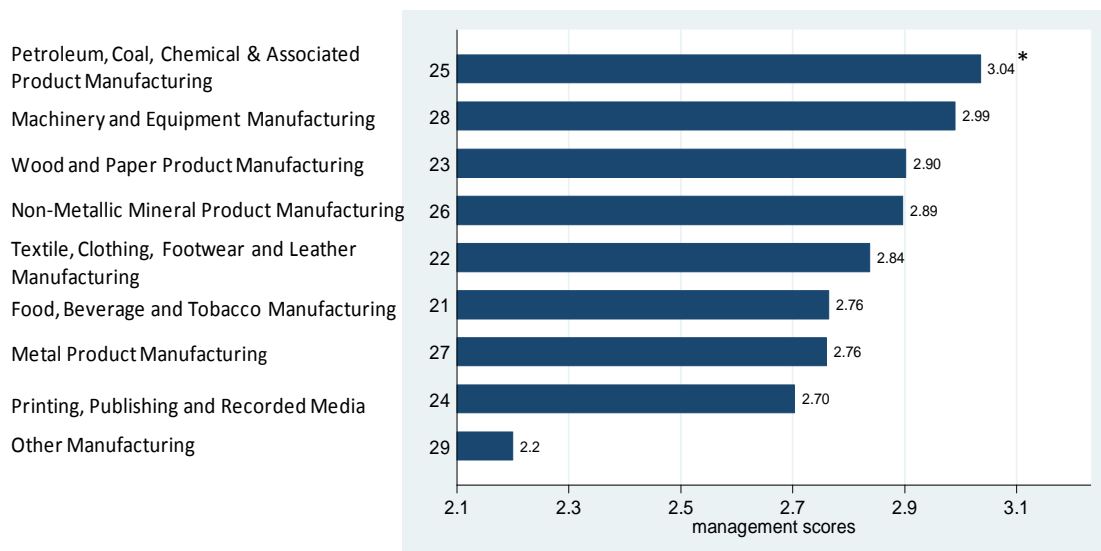


Source: New Zealand management practices research.

Note: A very negligible number of companies from Southern region (only 4) were part of the sample, may not be a true representation of the manufacturing population in this region.

An examination of the relative performance in the overall management score across ANZSIC manufacturing industry sectors reveals that only Petroleum, Coal, Chemical and Associated Product Manufacturing (ANZSIC Code 25) performs statistically significantly better than the other sectors (Exhibit 37).

Exhibit 37 - Overall management scores by industry



*: Statistically different from the rest of the sample at 5 per cent significance level.

Source: New Zealand management practices research.

Note: Findings for Printing, Publishing and Recorded Media (ANZSIC Code 24), Non-Metallic Mineral Product Manufacturing (ANZSIC Code 26) and Other Manufacturing (ANZSIC Code 29) should be taken with caution due to a small and negligible sample size.

There are statistically significant variations between industry sectors in the three management areas (Exhibit 38). Machinery and Equipment Manufacturing (ANZSIC Code 28) ranks first in operations management, while Other Manufacturing (ANZSIC Code 29) is significantly worse compared to the other industry sectors. In performance management, Petroleum, Coal, Chemical and Associated Product Manufacturing (ANZSIC Code 25) is better than the rest, and Other Manufacturing (ANZSIC Code 29) is statistically worst. In the area of people management, Petroleum, Coal, Chemical and Associated Product Manufacturing (ANZSIC Code 25) is the best performing sector. Printing, Publishing and Recorded Media (ANZSIC Code 24) and Other Manufacturing (ANZSIC Code 29) are the worst in its people management practices. All other sectors are statistically identical within each area.

Exhibit 38 - Relative industry performance across the three management areas

statistically better	ANZSIC 28	ANZSIC 25	ANZSIC 25	ANZSIC 25
	ANZSIC 22, ANZSIC 23, ANZSIC 24, ANZSIC 25, ANZSIC 26, ANZSIC 27	ANZSIC 21, ANZSIC 22, ANZSIC 23, ANZSIC 24, ANZSIC 26, ANZSIC 27, ANZSIC 28	ANZSIC 21, ANZSIC 22, ANZSIC 23, ANZSIC 26, ANZSIC 27, ANZSIC 28	ANZSIC 21, ANZSIC 22, ANZSIC 23, ANZSIC 24, ANZSIC 26, ANZSIC 27, ANZSIC 28
	ANZSIC 21, ANZSIC 29	ANZSIC 29	ANZSIC 24, ANZSIC 29	ANZSIC 29
statistically not different				
statistically worse				
	Operation	Performance	People	Overall

Source: New Zealand management practices research.

Note: Findings for Printing, Publishing and Recorded Media (ANZSIC Code 24), Non-Metallic Mineral Product Manufacturing (ANZSIC Code 26) and Other Manufacturing (ANZSIC Code 29) should be taken with caution due to a small and negligible sample size.

21: Food, Beverage and Tobacco Manufacturing; 22: Textile, Clothing, Footwear and Leather Manufacturing; 23: Wood and Paper Product Manufacturing; 24: Printing, Publishing and Recorded Media; 25: Petroleum, Coal, Chemical and Associated Product Manufacturing; 26: Non-Metallic Mineral Product Manufacturing; 27: Metal Product Manufacturing; 28: Machinery and Equipment Manufacturing; 29: Other Manufacturing.

At the level of the eighteen management dimensions, there is considerable variance in performance between industry sectors (Exhibit 39). In summary, Machinery and Equipment Manufacturing, and Petroleum, Coal, Chemical and Associated Product Manufacturing outshine the rest in many dimensions, and Other Manufacturing lags behind in others.

Exhibit 39 - Relative industry performance across the eighteen management dimensions

	MD1	MD2	MD3	MD4	MD5	MD6	MD7	MD8	MD9	MD10	MD11	MD12	MD13	MD14	MD15	MD16	MD17	MD18
statistically better		24			25	23		25	25	25		25				25		23
	28	28	28	28													28	
statistically not different	22	22	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
	23		23	23	23		23	23	23	23	23	23	23	23	23		23	22
	24	24	24	24	24	24	24	24	24	24	24	24	24	24			24	21
	25	25	25	25	25	25	25	25	25	25	25	25	25	25			25	25
	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
	29	29	29		28	28	28	28	28	28	28	28	28	28	28	28	28	28
statistically worse	21	21				21												
		23													25	23	24	
				29	29		29	29		29	29	29	29			27		
																	29	

Source: New Zealand management practices research.

Note: Findings for Printing, Publishing and Recorded Media (ANZSIC Code 24), Non-Metallic Mineral Product Manufacturing (ANZSIC Code 26) and Other Manufacturing (ANZSIC Code 29) should be taken with caution due to a small and negligible sample size.

MD1: Adoption of Lean Manufacturing; MD2: Rationale for the adoption; MD3: Process documentation; MD4: Performance tracking; MD5: Operations Performance review; MD6: Operation Performance dialogue; MD7: Consequence management; MD8: Types of goals; MD9: Interconnection of goals; MD10: Time Horizon of goals; MD11: Setting stretched goals; MD12: Clarity of goals; MD13: Installing a talent mindset; MD14: Rewarding top performance; MD15: Addressing poor performance; MD16: Promoting high performers; MD17: Attracting high performers; MD18: Retaining high performers.

7 Some pointers for New Zealand manufacturing firms

7.1 Watch out for both the emerging and advanced economies

The rising power of Indian and Chinese enterprise sector cannot be overemphasized. Both India and China are fast becoming economic forces to be reckoned with. Based on the progress expected of India and China, it is gauged that in the foreseeable future today's largest economies in the world (by GDP) may no longer be the richest (by income per capita) and today's advanced economies may progressively become a shrinking part of the world economy⁴⁷. Comparing New Zealand management performance with that of India and China shows that the top 30 per cent of Indian and Chinese firms are better managed than the average New Zealand firm⁴⁸ (Exhibit 40). Currently, China ranks 29th and India 49th in the 2009-10 Global Competitiveness Index (GCI), while New Zealand is ranked 20th. Business sophistication and innovation are key components which are incorporated in the GCI measure and are linked to the competitiveness of nations⁴⁹. Looking ahead, given the increasing global competitiveness of India and China and associated sophistication in their business strategies, operations and networks, it is likely that the share of better-managed Indian and Chinese firms will also increase⁵⁰.

⁴⁷ Wilson, D & Purushothaman, R, *Dreaming with BRICs: The Path to 2050*, (Goldman Sachs Research Centre :2003).

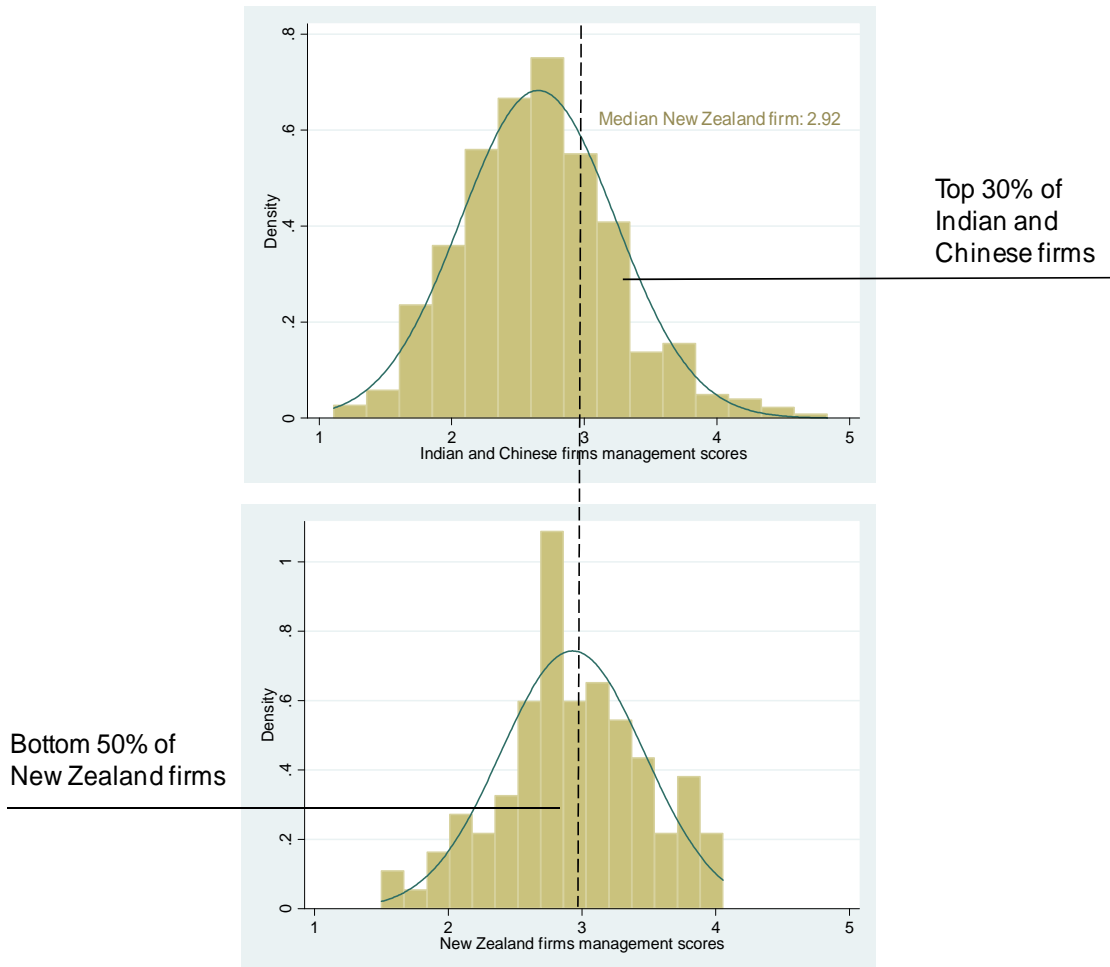
⁴⁸ This is based on analysis of New Zealand firms having between 100 and 5000 employees, in keeping with the rest of the international benchmarking analysis. The same criteria are used for analysis in chapter 7.2.

⁴⁹ Sala-i-Martin, X, Blanke, J, Hanouz, M, Geiger, T, Mia, I, Paua, F, *The Global Competitiveness Index: Measuring the Productive Potential of Nations*, (World Economic Forum : 2007).

⁵⁰ World Economic Forum's Global Competitiveness Report 2009-

10. <http://www.weforum.org/en/initiatives/gcp/Global%20Competitiveness%20Report/index.htm>.

Exhibit 40 - New Zealand benchmarked with India and China



Source: Management Matters dataset. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; New Zealand management practices research.

It is also interesting to compare the management performance of New Zealand with significant advanced economies of the world – Australia, US and Japan - countries which are also New Zealand's key trading partners. In the neighbourhood, Australia is New Zealand's largest trading partner. The top 59 per cent of Australian firms are better managed than half of the New Zealand firms. What's more, 75 per cent of the US manufacturing firms outperform the average New Zealand firm. Looking at Japan, another country which New Zealand shares a lot of trade and relations with; the average New Zealand firm is below 64 per cent of Japanese manufacturing firms in terms of its management performance. This provides significant reason for New Zealand to remain focussed on improving its own management capabilities and performance to progress its current standing in the global context.

7.2 In-depth comparison of New Zealand with Australia

New Zealand is ranked lower than Australia in all management areas (Exhibit 41). However, the scores of New Zealand and Australia are statistically on par in the areas of overall management, operations management and performance management. New Zealand performs statistically worse than Australia in people management, an area where there is significant scope for improvement.

Exhibit 41 - New Zealand management compared with Australia

	Australia	New Zealand
Overall management		
Score	3.02	2.93
Ranking	Rank 6 among 17 countries	Rank 10 among 17 countries
Performance falls in	second tier of countries globally	second tier of countries globally
Statistically on par with	New Zealand, France, Great Britain, Italy	Australia, France, Great Britain, Italy
Top tier countries	USA, Sweden, Japan, Germany, Canada	
Operations Management		
Score	3.26	3.17
Ranking	Rank 7 among 17 countries	Rank 10 among 17 countries
Statistically on par with	France, New Zealand, Great Britain, Italy	France, Australia, Great Britain, Italy, Portugal
Top tier countries	Sweden, USA, Canada, Germany, Japan	
Performance Management		
Score	3	2.96
Ranking	Rank 6 among 17 countries	Rank 9 among 17 countries
Statistically on par with	Italy, New Zealand, France, Canada, Poland	Italy, Australia, France, Canada, Poland, Great Britain
Top tier countries	Japan, Germany, Sweden, and the USA	
People Management		
Score	2.75	2.63
Ranking	Rank 8 among 17 countries	Rank 14 among 17 countries
Statistically on par with	Sweden, France, Ireland, Italy	France, Ireland, Italy, Brazil, India, China
Top tier countries	USA, Canada, Germany, Japan, Poland, Great Britain, Sweden	
Comparison with emerging economies - India and China		
What proportion of top performing Indian and Chinese firms are better managed than the average Australian or New Zealand firm?	Top 27 per cent of Indian and Chinese firms are better managed than the half of the Australian manufacturing firms	Top 30 per cent of Indian and Chinese firms are better managed than the half of the New Zealand manufacturing firms











-  Australia higher than New Zealand
-  New Zealand higher than Australia
-  Australia and New Zealand no different from each other
-  Australia and New Zealand different from each other

Source: New Zealand management practices research; Management Matters in Australia: Just how productive are we?, November 2009, Department of Innovation, Industry, Science and Research, Australia
<http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>

The positive association between management practices and productivity is consistently evident in both New Zealand and Australia, but there are still some differences in the results of the econometric analysis between the two countries. Interestingly, while the relative association between management practices and labour is the same for both New Zealand and Australia, the impact of increase in management score on capital is far higher in the New Zealand context⁵¹ (Exhibit 42).

⁵¹ This result for invested capital, which is high compared with other surveyed countries, is likely to be the result of limitation in availability of firm capitalisation data used in the analysis.

Exhibit 42 - Economic benefits of management in New Zealand vs. Australia

		Australia	New Zealand
Management Practices association with firm productivity			
Labour productivity (sales per employee) vs. management score		Positive association	Not a clear positive association
Labour productivity (profit per employee) vs. management score		Not available for Australian analysis	Positive association
Sales vs. management score		Positive association	Positive association
Number of employees vs. management score		Positive association	Positive association
Key findings from the econometric analysis			
A movement of one standard deviation in management score is associated with:		8.4% (upto 16%) increase in sales per employee	7.5% increase in sales per employee
An increase of one per cent in property plant and equipment per employee is associated with:		0.085% increase in sales per employee	0.304% increase in sales per employee
A movement of one standard deviation in management score is associated with:		13% increase in sales	17.1% increase in sales
A movement of one standard deviation in management score is associated with:		19.5% increase in the number of employees	26.9% increase in the number of employees
A movement of one standard deviation in management score is associated with:		34.9% increase in Tobin's Q	Not available for New Zealand analysis
Relative association between management practice, capital and labour			
The relative output of an increase of one point in the management score is equivalent to:		56% increase in labour or 44% increase in capital.	56% increase in the labour or 106% increase in capital.



Australia higher than New Zealand
New Zealand higher than Australia



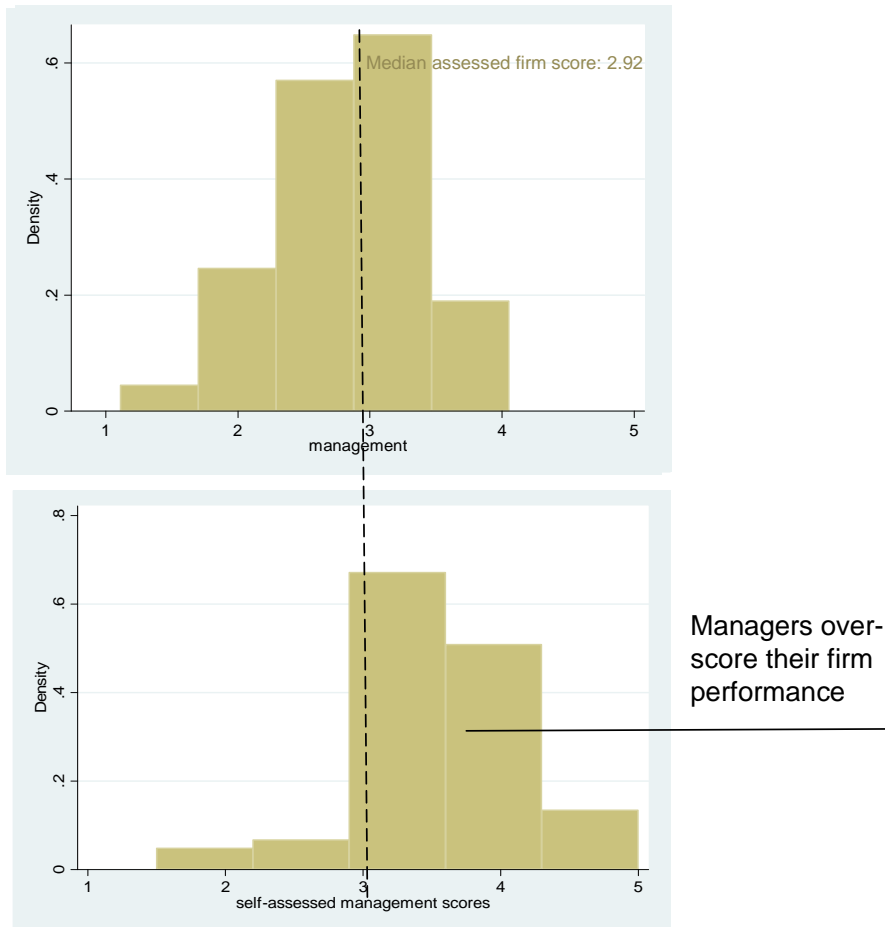
Australia and New Zealand no different from each other
Australia and New Zealand different from each other

Source: New Zealand management practices research; Management Matters in Australia: Just how productive are we?, November 2009, Department of Innovation, Industry, Science and Research, Australia
<http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>.

7.3 New Zealand managers over-estimate their own calibre

Some New Zealand firms exhibit poor management performance and yet do not seem to be making any effort to enhance their management capabilities. Focussing on management improvement is simply not a priority for these firms. To understand why, managers were asked to self-assess their firm's management performance based on how they perceived the overall management calibre at their firm. Taking care to prevent any bias from skewing this rating, managers were asked to exclude their own personal contribution while evaluating their firm. Managers consistently over-rate their firms' management performance. In addition, their self-assessed scores of how they see their firm performing do not align well with firm's management score as assessed through our interview's scoring grid (Exhibit 43).

Exhibit 43 - Self-assessed vs. our assessed management score



Source: New Zealand management practices research

This suggests that managers are unaware of actual management performance in their firm and do not focus on benchmarking their management against best practices or other firms in their sector. As a result, they are likely to be in the dark and are unable to recognise the potential areas for improvement. This result is consistent with previous research in other countries, which led Bloom *et al.* to conclude that: “many organisations are probably missing out on an opportunity for significant improvement because they simply do not recognise that their own management practices are so poor”⁵². This may be related to New Zealand’s poor scores in both “retaining high performers” and “addressing poor performance”. Improving managers’ self-awareness can better allow New Zealand firms to drive improvements in management performance thus shifting the performance curve towards the higher edge and raising their management score well beyond the current average of 2.92.

⁵² Nick Bloom, Stephen Dorgan, John Dowdy, John Van Reenen, “Management Practice & Productivity: Why they matter?”, *Management Matters*, Nov 2007, Pg 8.

8 Drivers of New Zealand management practices

We know that better management is associated with enhanced productivity performance at the enterprise and industry level. But what really are the drivers of the adoption of managerial best practice in New Zealand? Our results show that New Zealand management performance is more consistent across firms than in many other countries, but considerable variance still exists. What factors could be responsible for the spread of management practices across New Zealand firms?

8.1 Multinationals lead in management quality

Multinational corporations (MNCs) “perform well wherever they are in the world, even in areas where overall management practice scores were particularly low”⁵³. In New Zealand multinationals clearly outperform domestic firms and the difference is statistically significant ($p < 0.05$) (Exhibit 44). Furthermore, foreign MNCs, including New Zealand subsidiaries of a foreign multinational company, have the best management scores. New Zealand-based MNCs also outperform companies which only operate domestically. Analysis also shows that seventy per cent of interviewed firms with below average management scores are domestic firms. On the other hand, sixty four per cent of firms with above-average management performance are MNCs. Multinational firms may be capable of deploying better management practices, or, conversely, better-managed firms may become multinationals. In either case, skills, technologies and management capability may percolate through the market by “transfer of best practice to local firms both, possibly through the migration of employees and knowledge and through commercial interactions between the two groups”⁵⁴.

Earlier research has suggested that MNCs contribute positively to a country’s business landscape in three ways – first, through building capabilities and critical mass, second, by opening up distribution channels, overseas employment opportunities and export avenues, and third, by augmenting the flow of knowledge and skills to domestic firms, customers and staff alike⁵⁵. Another study has indicated that MNCs primarily create and diffuse innovations by leveraging the knowledge base contained in their network of subsidiaries⁵⁶. This suggests that New Zealand MNCs can help the advancement of knowledge diffusion and building of skills leading to enhanced business innovation across partnering organisations.

The New Zealand economy has a notable lack of large indigenous firms operating in global locations compared to many other advanced economies⁵⁷. The OECD attributes this to the combined effect of New Zealand’s economic size and geographical distance from major international markets⁵⁸. As larger firms are more likely to be better managed, this factor may curtail the development of managerial skills and resources. Conversely, New Zealand’s relative

⁵³ Nick Bloom, Stephen Dorgan, John Dowdy, John Van Reenen, “Management Practice & Productivity: Why they matter?”, *Management Matters*, Nov 2007, p. 8.

⁵⁴ Nick Bloom, Stephen Dorgan, John Dowdy, John Van Reenen, “Management Practice & Productivity: Why they matter?”, *Management Matters*, Nov 2007, Pg 8.

⁵⁵ Dr Lyndal Thorburn, Dr John Langdale and Professor John Houghton, *Friend or Foe: Leveraging foreign multinationals in the Australian Economy*, (Sydney: Australian Business Foundation, 2002).

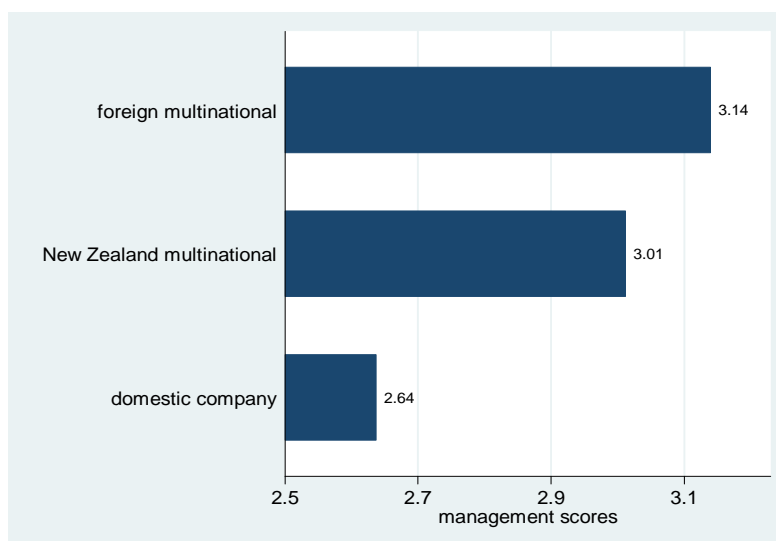
⁵⁶ Stewart Johnston and Angela Paladino, “Knowledge Management and Involvement in Innovations in MNC Subsidiaries”, *Management International Review*, 2007, vol. 47, pp. 281 – 302.

⁵⁷ Duncan Mills and Jason Timmins, (2004), “Firm Dynamics in New Zealand: A Comparative Analysis with OECD Countries”, New Zealand Treasury Working Paper 04/11, Wellington.

⁵⁸ *OECD Reviews of Innovation policy – New Zealand*, (Paris: OECD, 2007).

lack of management skills may make it more difficult for manufacturing firms to expand output and sales.

Exhibit 44 - Management score – MNCs vs. domestic firms



Source: New Zealand management practices research.

Note: The scores are statistically different at the 5 per cent significance level.

8.2 Firm ownership impacts management performance

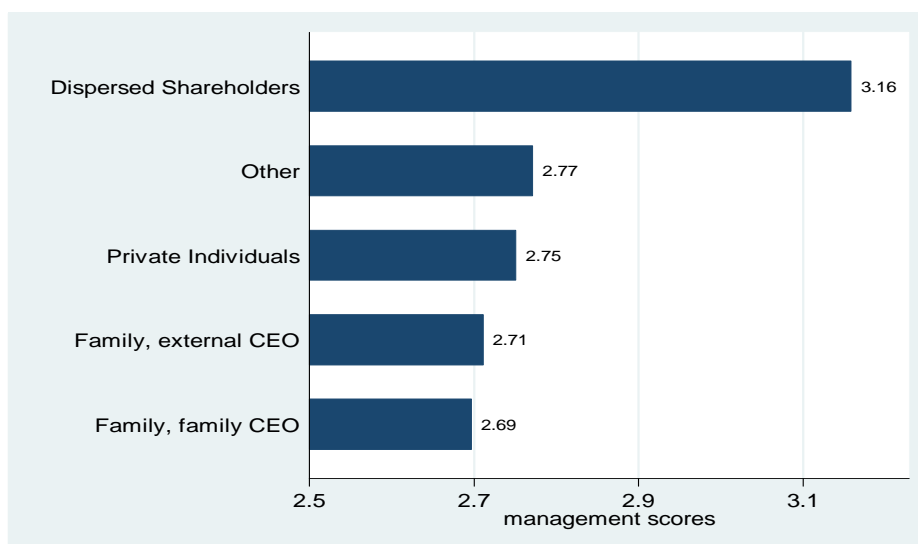
Firms' management performance seems to also be linked to their ownership structure. Publicly owned companies exhibit superior management performance compared to other types of companies in New Zealand including privately-owned firms, family-owned firms and other firm types such as co-operatives. The result reveals that difference in management scores between firms of different ownership types are statistically significant ($p < 0.05$) (Exhibit 45). This finding is consistent with previous results from other countries. In addition, publicly listed firms also display more consistent performance in management practices. New Zealand publicly listed companies seem to be more strongly driven by their need to meet shareholder expectations and deliver robust market value. By contrast, family-owned firms significantly underperform the publicly listed companies in terms of management practices. Family and founder firms also form the majority (79 per cent) of the most poorly managed firms (bottom 10 percentile in management scores) in New Zealand. It seems that many such firms have huge scope to adopt and implement good management practices in their firms.

Among the family owned firms, those that engage an external professional manager as CEO perform better, albeit marginally, than those that are both owned and managed by a family member (Exhibit 45). The New Zealand results exhibit the same trend as prior research findings, where the difference was significantly higher, indicating that "a propensity to employ professional managers and to promote them on the basis of merit delivers better managed, better performing firms"⁵⁹. Within family owned and managed firms, "the knowledge that family members will receive management positions in the future may generate a 'Carnegie

⁵⁹ Nick Bloom, Stephen Dorgan, John Dowdy, John Van Reenen, "Management Practice & Productivity :Why they matter?", *Management Matters*, Nov 2007, Pg 7.

effect' of reducing their investment in human capital earlier in life"⁶⁰. In turn, this translates into poor management capability and performance. Other research on management problems facing family owned businesses has shown that the placement of family members who lack requisite talent and expertise in critical management roles causes major problems for family firms. Instead, such firms should "hire outside talent to fill key positions for the long-term good and morale of the company"⁶¹.

Exhibit 45 - Management scores by firm ownership type



Source: New Zealand management practices research.

Note: 'Other' firm ownership type mainly includes co-operative firms. Findings for 'Other' firm category should be taken with caution due to a small and negligible sample size.

The scores are statistically different at the 5 per cent significance level.

8.3 Education and skills are crucial factors

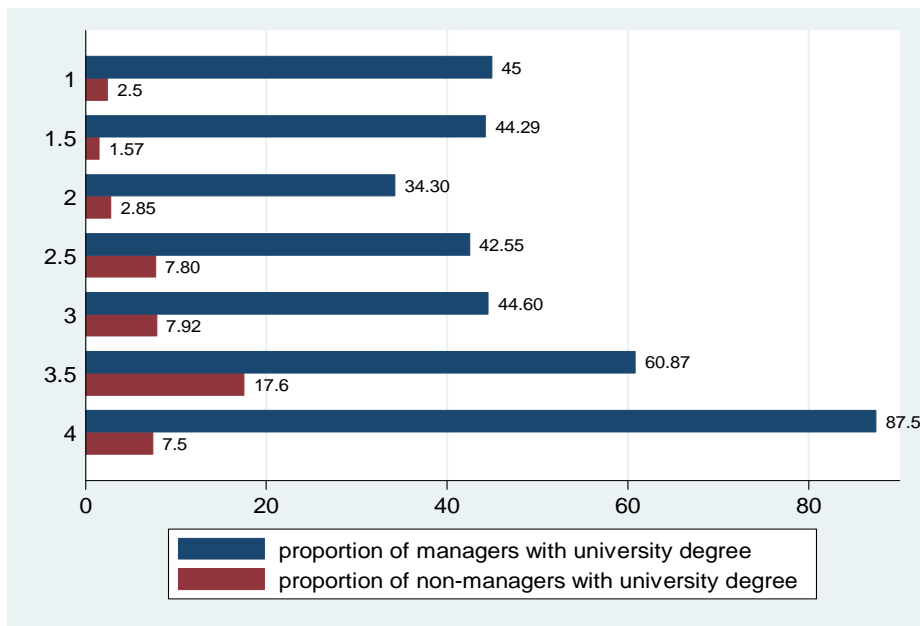
The findings of the global research suggest that "the availability of skilled people, both in management and among the workforce in general, is another important difference between better managed firms and the rest"⁶². The positive correlation between skills and management practices is also evident in New Zealand; 88 per cent of managers in the highest scoring firms possessed a university degree or higher, as did 8 per cent of the non-management workforce. However, among the lowest scoring firms, only 45 per cent of managers and only 3 per cent of the non-managers possessed a university degree (Exhibit 46). The relationship between management performance and skill levels is indeed statistically significant ($p < 0.05$); the proportion of managers and non-managers with university degrees can explain, respectively, 5.3 per cent and 7.7 per cent of the variation in management scores.

⁶⁰ Bloom, Nicholas and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries", *The Quarterly Journal of Economics* 122 (4): (2007), p.1351-1408.

⁶¹ Tommy Bowden, "Management Problems facing family-owned businesses", <http://www.sbdc.uga.edu/pdfs/bowden08.pdf>.

⁶² Nick Bloom, Stephen Dorgan, John Dowdy, John Van Reenen, "Management Practice & Productivity :Why they matter?", *Management Matters*, Nov 2007, p. 8.

Exhibit 46 - Management scores by education levels of managers and non-managers

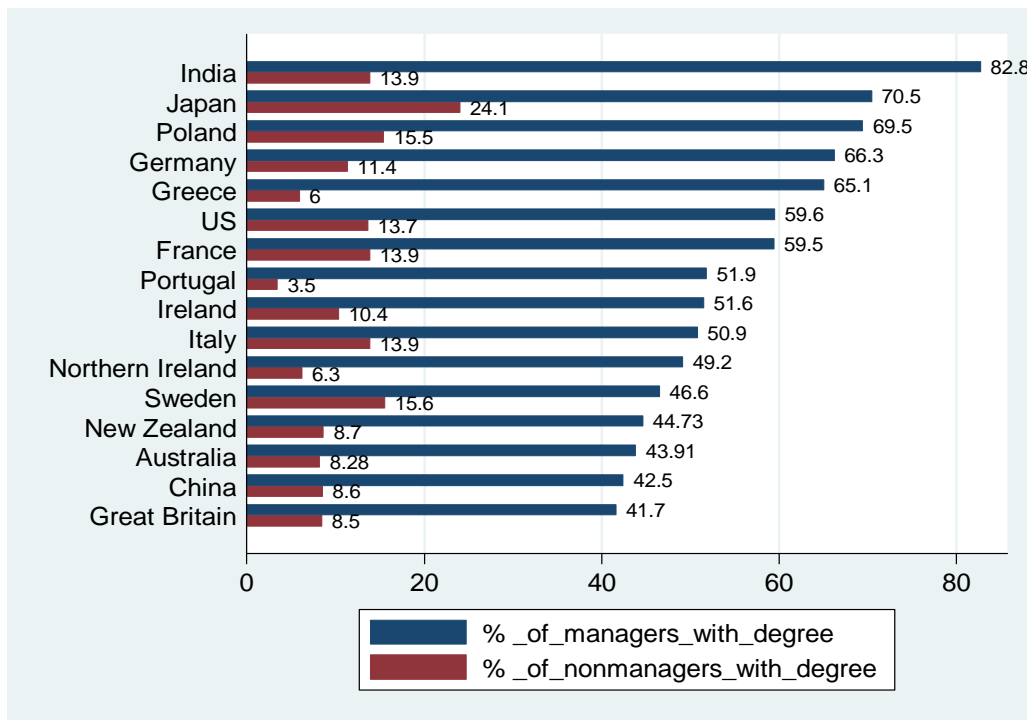


Source: New Zealand management practices research.

Our results support the premise that firms in a high-skill environment will have better human-capital management practices than those in a low-skill environment⁶³. However, on average only 45% of managers and a mere 9% of non-managers among the interviewed firms have a university degree. This shows that the skill levels within New Zealand manufacturing are among the lowest in the developed world (Exhibit 47).

⁶³ Bloom, Nicholas and John Van Reenen "Measuring and Explaining Management Practices Across Firms and Countries", *The Quarterly Journal of Economics* 122 (4): (2007), p.1351-1408.

Exhibit 47 - Level of education by country



Note: Canada is excluded from the statistical analysis of individual questions as the firm-level data for Canada is not available; Northern Ireland has been shown as separate jurisdiction of Ireland.

Source: Management Matters dataset. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; New Zealand management practices research; Management Matters in Australia: Just how productive are we?, November 2009, Department of Innovation, Industry, Science and Research, Australia <http://www.innovation.gov.au/General/Corporate/Pages/ManagementMattersinAustralia.aspx>

8.4 Labour market flexibility matters, but not more than management performance

Is labour market structure a factor in New Zealand management performance? The LSE research team identified a correlation between countries' people management score and their scores on the World Bank's rigidity of employment index (REI) (Exhibit 48)⁶⁴. They found that "flexible labour markets encourage companies to adopt better people management practices in order to attract and retain the best employees"⁶⁵, thus explaining the higher management scores in countries such as the US and Canada. New Zealand, along with Canada, Australia and the US has among the lowest rigidity scores, indicating that the New Zealand labour market is highly flexible. Moreover, New Zealand enjoys a relatively low unemployment rate and high labour force participation rates across different groups. The OECD report on New Zealand notes that "the labour market does not pose any institutional barriers to innovation, entrepreneurship and business growth"⁶⁶.

⁶⁴ Rigidity of employment index is part of the World Bank ranking of countries and is a proxy for labour market conditions. It is a simple average of the below three indices (The World Bank, *Doing Business 2008*):

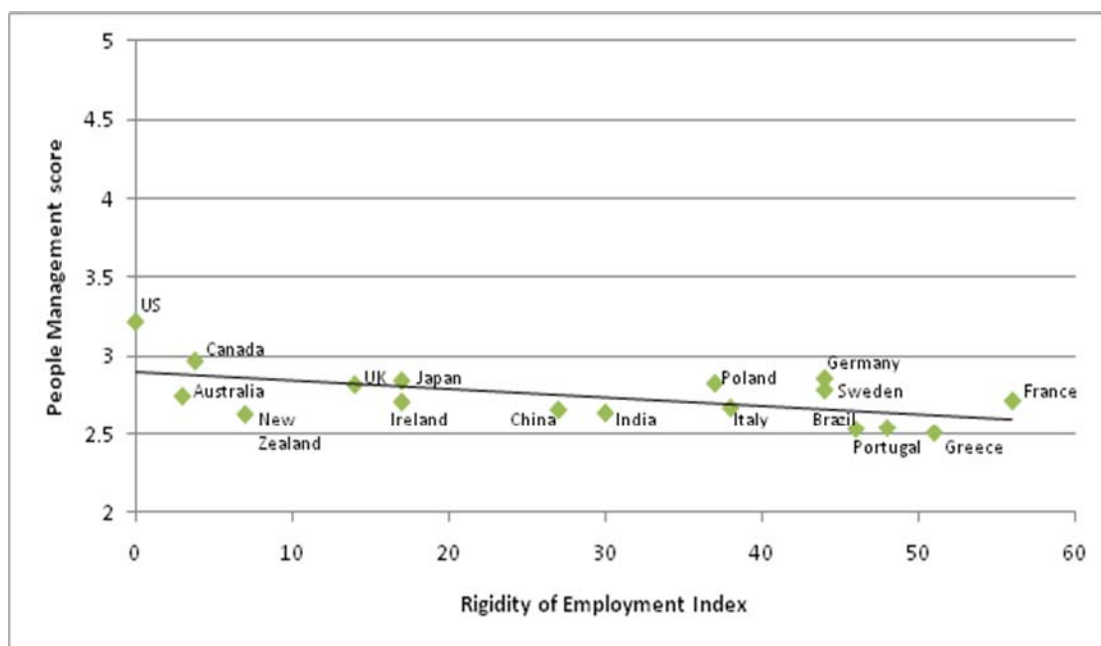
- Difficulty of hiring index: Applicability and maximum duration of fixed-term contracts and minimum wage for trainee or first-time employee.
- Rigidity of hours index: Scheduling of nonstandard work hours and annual paid leave.
- Difficulty of firing index: Notification and approval requirements for termination of a redundant worker or a group of redundant workers, obligation to reassign or retrain and priority rules for redundancy and reemployment.

⁶⁵ Nick Bloom, Stephen Dorgan, John Dowdy, John Van Reenen, "Management Practice & Productivity :Why they matter?", Nov 2007, Pg 8.

⁶⁶ *OECD Reviews of Innovation policy – New Zealand*, (Paris: OECD, 2007).

However, New Zealand scored low in people management performance, and some countries have scored better in people management despite higher employment rigidity indices. This recalls earlier OECD research on the relationship between bargaining arrangements and firm performance finding that “the impact of the organisation of collective bargaining on labour market performance appears to be contingent upon other institutional and policy factors and these interactions need to be clarified in order to provide robust policy advice”⁶⁷. This suggests that the nature and characteristics of people management is not only determined by labour market structure but also by other factors, including management strategy itself. Consequently, firms are capable of improving people management by changing their current management practices and structures.

Exhibit 48– People management scores vs. rigidity of employment index



Source: New Zealand management practices research.

8.5 Striking a balance between organizational hierarchy and manager autonomy

Our results show that organisational hierarchy is positively correlated to management performance in firms and the relationship is statistically significant ($p < 0.05$). This may indicate that for manufacturing firms in New Zealand a certain optimal degree of hierarchy is necessary for the organization and management of operations, though it may also suggest that flatter structures are simply not as well managed as in other countries. Furthermore, we also found a highly significant relationship between the degree of manager autonomy and management performance ($p < 0.05$). Manager autonomy can explain approximately four per cent of variability in the management score. Greater manager autonomy is associated with higher management scores. This implies that a structured hierarchy certainly supports methodical deployment of management practices within manufacturing firms, yet adopting a flexible management style and creating an empowered workforce is as important in driving performance. It may therefore be desirable to strike an optimal balance between organisational structure and managerial autonomy.

⁶⁷ *Wage setting Institutions and Outcomes*, Employment Outlook, (Paris: OECD, 2004), pp 127 – 181.

9 Key implications for New Zealand

Superior management is linked with higher productivity performance in firms and at the industry level too. Management calibre is pivotal in improving firm performance and innovation, and hence in driving national economic prosperity. New Zealand management practices currently rate modestly when benchmarked globally, leaving significant scope for improvement in management capability. Achieving this calls for reflection by both government and industry itself on what is needed, including the scope for well-thought out policy initiatives to be implemented in a consistent and holistic manner, focused at industry and enterprise levels.

9.1 Considerations for New Zealand manufacturers

Focussing on management capabilities is vital for improving performance among New Zealand manufacturers. While firms have room to improve in all areas of management, particular attention is needed in the area of people management. Furthermore, the majority of New Zealand manufacturers overestimate their management performance. This should alert firms to the need to design internal policies, systems and processes to benchmark their management performance, identify performance gaps and make improvements. Such practices should become a 'way of life' for enterprises seeking to be competitive and create sustainable value.

Multinational corporations set the benchmark for other firms by taking a structured approach to management, and implementing superior management practices across nations, cultures and different market segments. Not only that, by positively impacting the standards of management practices in domestic firms, MNCs further benefit the New Zealand business environment⁶⁸. Foreign MNCs may transfer their global management expertise from their New Zealand subsidiaries to domestic firms through competitive pressures as well as knowledge-sharing interactions within and between sectors. In a similar vein, domestic New Zealand firms with multinational operations can also attain improvements in management performance.

Family firms face challenges in adopting and implementing good management practices. Family-owned and -managed firms consistently underperform public and privately owned firms in management scores. In order to raise their performance, family firms should make a long-term commitment to fostering management performance and capability and ensuring that key management positions are filled by merit and talent.

Enhanced skills and higher education levels in both the managerial cadre and non-managers belonging to the general workforce of manufacturing firms is positively associated with superior management performance. Therefore, firms are likely to benefit by employing and retaining better educated personnel both as managers and shop-floor workers, and focussing on periodically upgrading skills and capabilities through training and development initiatives.

Autonomous management is related to superior management performance. Adopting a flexible management style, decentralising the decision-making processes, empowering managers of manufacturing firms and developing autonomous work environments can in turn translate into better corporate productivity and performance.

⁶⁸ Nick Bloom, Stephen Dorgan, John Dowdy, John Van Reenen, "Management Practice & Productivity: Why they matter?", *Management Matters*, Nov 2007, Pg 8.

9.2 Considerations for New Zealand government

This research study can assist the New Zealand government in making informed policy decisions. Its findings about the association between management practices and firm performance and the relationship between firm size and multinational status and management quality contribute to the evidence base for future policy decisions. Specifically, policymakers should consider the following issues raised by this research:

The link between management performance and innovation: Managers are often crucial in driving innovation and improvements in business processes. As a result, investing in better management practices can help to improve the New Zealand economy's ability to develop and diffuse technical and operational innovations. This is in accord with the recommendation of the OECD's 2007 review of New Zealand's innovation policy that New Zealand should adopt a more broad-based approach that encompasses "soft" innovation as well as R&D and high-tech⁶⁹.

The link between management performance, firm size, and multinational status: Larger manufacturers tend to be better managed than smaller ones, and multinational firms tend to be better managed than domestic firms. It may be the case that increasing the proportion of large firms and MNCs in the manufacturing sector will yield dividends in terms of management quality. Conversely, improving management performance may facilitate firms' growth into overseas markets. This relationship should be investigated further as it bears on policy around attracting foreign direct investment and promoting export growth.

The link between skill development and firm performance: More educated workforces tend to have higher management scores, and, notably, New Zealand firms sampled have among the lowest proportion of managers with university degrees. Manufacturers with more human capital may be better able to innovate and drive productivity improvements.

9.3 Implications for the future

This research study has provided an internationally comparable measure of management performance for New Zealand manufacturing firms. The findings contribute to the evidence base on the link between management, productivity, and other aspects of manufacturing firm performance. They can also be used to inform policy aimed at lifting firm performance, particularly in the economically important manufacturing sector.

This study suggests that instilling effective management practices and promoting a high-performance workplace culture has the potential not only to build sustainable competitive advantage within business enterprises but also to boost national prosperity. The findings suggest that improved management capability and skills can contribute to a higher trend rate of productivity and performance. They also show, based on econometric modelling that firms would need to increase labour by 41% or capital by 77% to increase their output by an equivalent amount as they would by increasing their management score from the 25th to the 75th percentile⁷⁰. The high result for capital is likely to be the result of limitations in availability of firm accounting data used in the analysis.

⁶⁹ *OECD Reviews of Innovation policy – New Zealand*, (Paris: OECD, 2007).

⁷⁰ It is to be noted that the capital and labour data are not directly comparable to the labour, capital and management variables depicted by economic theory.

The study also identifies management areas where New Zealand manufacturing firms lag behind international best practice, and hence where they have room for significant improvement. While New Zealand businesses score relatively well in some dimensions of operations and performance management, they lag significantly in people management. The findings of this research also uncover the key drivers of good management practice; firm size, firm ownership, education and skills, presence of multinationals, and labour market structures are factors which need to be kept in mind when developing strategies to enhance management performance.

Other researchers have suggested that “deliberate efforts to strengthen dynamic capabilities are a genuine option for managers”⁷¹. In this context, policymakers may consider how public policy can help inculcate higher-order competencies for dynamic capability building⁷², foster the development of intangible processes and management techniques to significantly improve productivity⁷³ and promote a transformation of management and workplace performance. Doing so may ultimately translate into improved productivity and better firm performance. However, as improving management capability is a co-evolutionary adaptive process of doing-by-learning, firms must take the lead in order to reap the benefits. Overall, the research findings highlight the opportunity for industry and government – to foster high performance management and workplaces which will enable New Zealand to build a competitive, agile and dynamic economy for the 21st century.

⁷¹ Cepeda, G. & Vera, D. “Dynamic Capabilities and Operational Capabilities: a Knowledge Management perspective”, *Journal of Business Research*, 2007, 60, p. 426-437.

⁷² Agarwal, R. & Selen, W., “Dynamic Capability Building in Service Value Networks for Achieving Service Innovation”, *Decision Sciences*, August 2009, Volume 40, Issue 3, p. 431-475.

⁷³ M. Alexopoulos and T. Tombe, “Management Matters,” Manuscript, University of Toronto, 2009 cited in ‘Management Matters’, Working paper 12, March 2009, <http://www.competeprosper.ca/>.

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