Management matters

WORKING PAPER 12, MARCH 2009

Institute for
COMPETITIVENESS & PROSPERITY

Institute for
Competitiveness & Prosperity

The Institute for Competitiveness & Prosperity is an independent not-for-profit organization established in 2001 to serve as the research arm of Ontario's Task Force on Competitiveness, Productivity and Economic Progress.

Working papers published by the Institute are primarily intended to inform the work of the Task Force. In addition, they are designed to raise public awareness and stimulate debate on a range of issues related to competitiveness and prosperity.

The mandate of the Task Force, announced in the April 2001 Speech from the Throne, is to measure and monitor Ontario's competitiveness, productivity, and economic progress compared to other provinces and US states and to report to the public on a regular basis. In the 2004 Budget, the Government asked the Task Force to incorporate innovation and commercialization issues in its mandate.

It is the aspiration of the Task Force to have a significant influence in increasing Ontario's competitiveness, productivity, and capacity for innovation. The Task Force believes this will help ensure continued success in the creation of good jobs, increased prosperity, and a higher quality of life for all Ontarians. The Task Force seeks breakthrough findings from their research and proposes significant innovations in public policy to stimulate businesses, governments, and educational institutions to take action.

The Task Force publishes annual reports to the people of Ontario each November.

Comments on this working paper are welcome and should be directed to the Institute for Competitiveness & Prosperity. The Institute for Competitiveness & Prosperity is funded by the Government of Ontario through the Ministry of Economic Development.

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Foreword and acknowledgements

" Strong management is critical for greater innovation in our economy and for our prosperity. "

I AM PLEASED TO PRESENT Working Paper 12 of the Institute for Competitiveness & Prosperity. In this Working Paper we focus on the potential for stronger management talent to contribute to higher economic prosperity.

In our research we have found a persistent prosperity gap between Ontario and US peer states and between Canada and the United States. While we are among the world's leaders in Gross Domestic Product (GDP) per capita, we continue to under perform our potential. We lag other developed economies in productivity and innovation, and we continue to trail the performance of our US counterparts, when we were once much closer to their prosperity level.

We have solid assets on which to build our prosperity performance – skilled people, excellent educational institutions, successful businesses and industries – but we are not making the most of these assets. We find, for example, that while we have a mix of industries that by their nature are conducive to productivity and innovation, they do not operate as effectively as they could. In the past, we have discussed some of the factors that stand in the way of better performance. In this Working Paper, we examine more closely the role of management talent in realizing our prosperity potential.

Strong management is a critical element in the innovativeness of our economy, and hence its productivity and prosperity. Strong management drives the demand for innovation through well developed businesses and ably executed strategies; it affects the ongoing supply of high quality innovation by setting research priorities and orchestrating technical resources; and it is key to the financing of innovation through the assembly of resources and the best allocation to promising investments.

Despite the importance of management, government innovation strategies do not take adequate account of this. They are still focused on increasing the technical resources driving the supply of innovation. We have commended Ontario's increased recognition of the importance of management in its innovation strategy, and recent initiatives by the federal government have enhanced the role of skilled management in its innovation strategy. Still, much remains to be done.

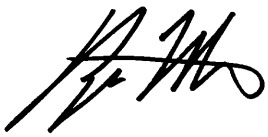
We review some of the existing research on the role of management in our economic prosperity and show where Canada and Ontario trail competitors. We provide the results of new research by colleagues of the Institute on the positive relationship between the introduction of new management techniques and productivity and prosperity and between management occupations and prosperity in Canadian city-regions.

We also share the results of the first-ever study of the capabilities of Canada's and Ontario's management in the manufacturing sector versus other leading developed and developing economies in the world. We find that our manufacturing management is among the best in the world, ranking in the top tier of the various measures in the research. Nevertheless, the research results point to improvement opportunities, especially in performance management and people management. The results also indicate the importance of education, broad ownership, and winning global strategies to strong management.

The results are especially heartening when we examine the performance of our global leaders – those Canadian firms that have established a top five leadership position in their products around the world. The global leaders captured in our dataset perform better in management capabilities than other multinationals operating in Canada and US firms overall. Clearly, there is a virtuous circle at work. Well managed firms are more likely to achieve international success; this international presence requires better management to survive and thrive on the global scene; in turn, this better management leads to greater domestic and international success of the firm.

The lesson is that our public policy needs to create the right environment for our firms to flourish globally and that our business leaders need to develop inspired strategies for pursuing global leadership. A key part of both approaches is the need to develop effective management capabilities to drive innovation in our products and processes and in our business strategies.

We gratefully acknowledge the ongoing funding support from the Ontario Ministry of Economic Development. We also acknowledge funding from Human Resources and Skills Development Canada in support of the management research we present in this paper. We look forward to sharing and discussing our work and our findings. We welcome your comments and suggestions.



Roger L. Martin, Chairman
Institute for Competitiveness & Prosperity
Dean, Joseph L. Rotman School of Management, University of Toronto

Executive summary

SINCE OUR INCEPTION IN 2001, the Institute for Competitiveness & Prosperity has reported a persistent and growing prosperity gap between Ontario and its US peer states and between Canada and the United States. While we achieve globally competitive levels of prosperity, as defined by Gross Domestic Product (GDP) per capita, Ontarians and Canadians are not realizing our full prosperity potential.

Our major challenge is to improve our performance in productivity and innovation. Two sources of prosperity are investing hours of work and producing more output per hour of work. On the former measure, in hours worked per capita, we are near the top of developed economies – through a combination of high participation rates, low unemployment rates, and high hours worked per worker. But on the latter measure, the value we add per hour worked, we trail many developed economies.

Value added per hour worked is a measure of *productivity* – traditionally defined as the unit of output per unit of input. But it also defines *innovation*. Businesses and jurisdictions that provide improved products or services truly valued by consumers will be able to achieve a price premium – thereby increasing the numerator of the productivity equation. Developing improvements in how goods are made or services delivered will lead to a reduction in the denominator of the productivity equation. In both events, innovation drives higher productivity.

In our past work, we have identified some of the factors behind this poor productivity and innovation performance. While Ontario has a mix of industries that are by their nature productive and innovative, these industries do not operate as effectively as they could. Some of these factors relate to broad economic factors – we tend less to live in metropolitan areas, and we are less well educated than our counterparts in the United States. But some of the factors relate to how our businesses compete. For example, they invest less in productivity enhancing machinery and equipment, particularly information technology. They produce fewer patents than their US counterparts. And our managers are less qualified.

In this Working Paper, we focus on the quality of our management. To what extent do we trail in productivity and innovation because our management capability is less well developed?

Our past research indicates that our senior and middle managers do not have fundamentally different attitudes toward competition, risk taking, and innovation. So we conclude that our managers do not have a different culture or outlook versus their US counterparts. Instead, our under performance in innovation and productivity is driven by under developed management capabilities – lower educational attainment and less diffusion of best management practices; and context – less competitive intensity in the markets and the lack of sophisticated customers.

We need effective management to lead business innovation. Innovation is the result of the ongoing interaction of three elements in an Innovation System: the *supply* of innovation, the *demand* for innovation, and the *financing* of innovation. These elements are driven by the competitive *pressure* and broad *support* that activate the Innovation System.

Each of the elements is critical for success; but all three need to work together in balance. The *supply* of innovation includes the activities and resources dedicated to increasing the stock of innovation, including highly qualified personnel and their facilities and resources. The *demand* for innovation is the combination of customer insistence on new products and process breakthroughs and corporate demand for innovation within a firm. The *financing* of innovation is an important bridge between demand and supply since, even if the other two factors are in balance, significant funding is typically required to commercialize new ideas and scientific breakthroughs. Innovation requires pressure and support in each of these areas. Effective management provides pressure and support across the Innovation System in strengthening demand for innovation, providing supply of innovation, and driving the quantity and quality of financing for innovation.

In this Working Paper, we provide research results that shed light on the importance of management in the prosperity of a jurisdiction. Michelle Alexopoulos from the University of Toronto developed a methodology for measuring innovation in management techniques, going as far back as Taylor's scientific management. Her measures track Library of Congress records of the publication of management books to define adoption of management techniques, supplemented with augmenting counts of relevant academic journal publications. She successfully developed this technique earlier as a measure of technological innovation, and she concludes that adapting it to management gives a good proxy for the development of management techniques across the economy.

Research Alexopoulos and Trevor Tombe conducted for the Institute indicates that increases in the publication of books on management are correlated with growth in productivity and prosperity. They observed a positive impact from growth in the number of management books over a nine-year period. They concluded that economic growth results not only from increases in "tangible technology," such as R&D, and machinery and equipment, as most economists agree; but it also is the result of advances in "intangible technologies," such as management techniques and new processes disseminated in part through publications.

In another study, researchers Richard Florida and Kevin Stolarick with the University of Toronto's Martin Prosperity Institute, along with Charlotta Mellander of the Prosperity Institute of Scandinavia at Jönköping International Business School, recently examined the factors that shape economic development in Canadian regions. They found that a greater proportion of people in managerial and business and finance occupations was an important factor in explaining prosperity at the regional level.

Having reviewed the available research on the importance of management to regional prosperity, we turn to evidence on management capabilities in Canada and Ontario versus those in other economies. In the summer of 2008, a team of analysts at the Institute for Competitiveness & Prosperity interviewed senior managers at 421 manufacturing operations across Canada. The interview was developed by an international team of professors led by Professor Nick Bloom of Stanford University and the Centre for Economic Performance at the London School of Economics. The research is a detailed approach to how well manufacturing operations have implemented advanced management techniques. It encompasses the level of knowledge of the techniques by managers, the company-wide commitment to measuring and monitoring results, and the quality of people management. The research had already been conducted in advanced economies, such as the United States, the United Kingdom, and Japan, and developing economies like China and India. The quality of management, as captured by the study, correlates well with firm and industry productivity.

The results for Canada were heartening. At the plant level, Canadian manufacturing management is among the world's best. Our management teams are leaders in implementing specific techniques in the area of Lean Manufacturing. They are solid performers in effecting good performance management, but with room for improvement. But while they match management teams in other leading economies in people

management, Canadian firms trail US practices significantly. Our results also indicate that some of the key variables that drive – or at least are correlated with – better management are education, ownership, and winning global strategies.

Our results indicate that the quality of manufacturing management is higher in Ontario than in the other regions of Canada, and that we are within statistical range of US results overall. Nevertheless, against the fourteen US peer states we have identified, Ontario under performs, especially in the area of people management – the willingness of managers to keep and promote high performers and to deal promptly with poor performers.

In our previous work, we have identified Canada's global leaders – firms in the top five of their market niche worldwide. The management research captures some of these global leaders, and their results are impressive. On average, the Canadian global leaders we interviewed exhibited management that was better than foreign multinationals in Canada and firms in the United States. Canadian firms that achieve global leadership are among the best managed in the world. Businesses that strive for international success can and do achieve great results.

Improving our management capabilities will create great opportunities for strengthening our prosperity. At the same time, not moving forward on management capabilities exposes Ontario to even greater vulnerability to emerging economies like China and India. Currently, our management capabilities are well ahead of those in emerging economies. But as they increase their business sophistication, we will need to stay ahead of them through sophisticated processes, products, strategies – and management.

In summary, this Working Paper concludes that management capabilities are important contributors to provincial and national prosperity. And our manufacturing management, particularly in Ontario, is among the world's best. Nevertheless, our businesses have improvement opportunities, especially through greater education of our management cadre. Firms should continue to be open to foreign investment, as the research indicates that the quality of management in multinationals is much higher than that in firms that compete only in their native country. Our firms should also strive for globally competitive strategies, as Canada's global leaders are among the best managed firms in the world.

Strong management delivers prosperity

CANADA IS NOT ACHIEVING its full prosperity potential. Relative to the United States, the economy most similar to ours and our largest trading partner, we have a growing prosperity gap. Canada's lag in GDP per capita rose from $2,600 in 1981 to $8,300 in 2007.[1] This growing gap reflects a failure to reach our full economic potential. It means that our generation has not created as much economic value as possible from the human, natural, and physical resources endowed to us.

Our work at the Institute for Competitiveness & Prosperity shows how we lag in innovation and productivity – two highly interrelated elements that raise the competitiveness of an economy and improve the living standards of its citizens. In our recent reports on Ontario's and Canada's competitiveness and prosperity, we set out a Prosperity Agenda for strengthening innovation and productivity across four elements.[2] We called for a shifting of our overall attitudes from collective complacency to a determination to realize our prosperity potential. We made recommendations that shift Canada's emphasis from consuming today to investing for tomorrow's prosperity. We outlined proposals to redesign our taxation system to motivate investments. And we proposed a strengthening of our market and governance structures to encourage creativity and growth instead of preserving the status quo.

In this Working Paper, we focus on management capability, an important part of market structures that is critical for innovation. A key component of closing our prosperity gap is for Canada to broaden its approach to innovation, with a greater commitment to strengthening the capability of our business managers.

We first review the importance of management talent for innovation and prosperity, including the results of new research that uncover further evidence that management techniques and their adoption are correlated with higher productivity gains. We then set out key findings from research we have recently conducted into the current state of management capabilities in Ontario's and Canada's manufacturing sector.

Management talent is important in the Innovation System

Innovation is the result of the ongoing interaction of three elements in an Innovation System – the **supply** of innovation, the **demand** for innovation, and the **financing** of innovation. These elements are driven by competitive *pressure* and broad *support* that activate the Innovation System (*Exhibit 1*).

Each of the elements is critical for success, but all three need to work together in balance. The **supply** of innovation includes the activities and resources dedicated to increasing the stock of innovation, including highly qualified personnel and their facilities and resources. The **demand** for innovation is the combination of customer insistence on new products and process breakthroughs and corporate demand for innovation within a firm. The **financing** of innovation is an important bridge between demand and supply since, even if these two factors are in balance, significant funding is typically required to commercialize new ideas and scientific breakthroughs. Innovation requires *pressure* and *support* in each of these areas.

A major source of support for the supply of innovation is government funding. University education of Masters and PhD students also provides support for supply of innovation. Beneficial pressure for upgrading innovation supply

[1] 2007 Canadian dollars; US dollars converted at 2007 PPP.
[2] Task Force on Competitiveness, Productivity and Economic Progress, Seventh Annual Report, *Leaning into the wind*, November 2008; Institute for Competitiveness & Prosperity, Report on Canada 2008, *Setting our sights on Canada's 2020 Prosperity Agenda*, April 2008.

is generated by the competition for peer-reviewed research funding and by pressure from sophisticated financiers of innovation.

Support for the demand for innovation comes from capable managers who understand the importance of innovation activities and pursue strategies based on innovative products and processes. Beneficial pressure derives from sophisticated customers who demand and reward successful innovations and by competitors who compete on the basis of innovation and upgrading.

Support for financing of innovation comes from favourable tax treatment of risk capital and from skilled investors who understand the specialized financing vehicles necessary to support innovation. Pressure comes from providers of capital who insist on high returns from investing in innovation and from competition between providers of risk capital.

All the elements require the necessary pressure and support, so the whole system performs to its full potential. Having an imposing strength in one element will not make up for weakness in another.

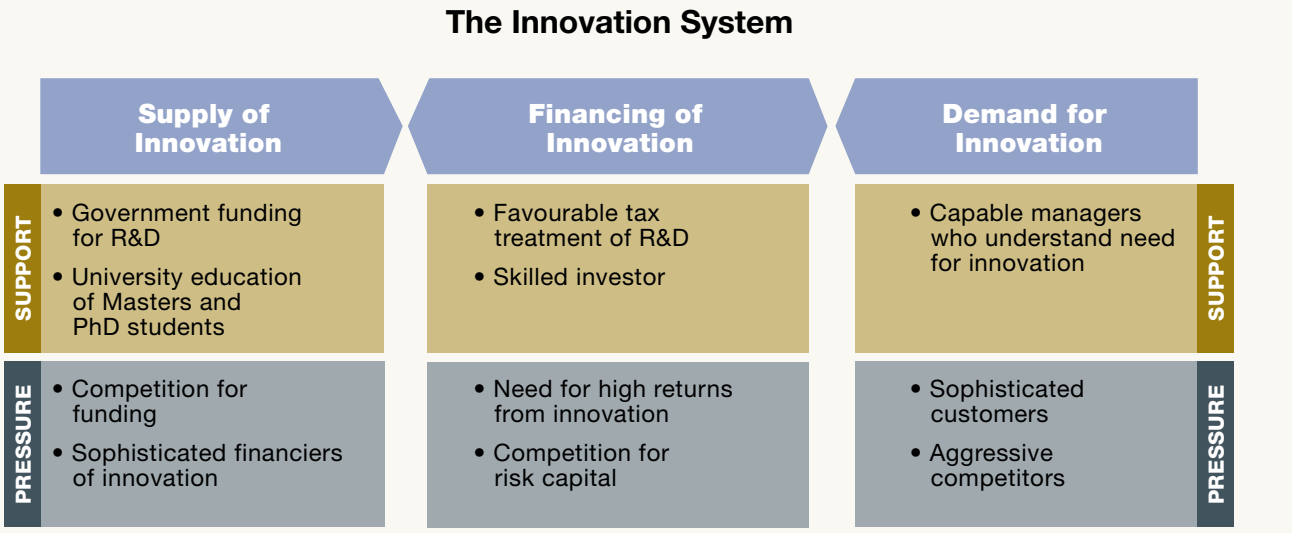
Strong management is important in each element of the Innovation System. The management function includes goal setting, organization building, resource allocation, and monitoring of results. It also includes actions in enterprise finance, sales and promotion, production and delivery, and people development.

Strong management is a significant driver of demand in an effective Innovation System. Capable managers support the demand for innovation through a keen understanding of the need for product and process innovation in developing company capabilities. Senior management drives the resource allocation in a company and thus stimulates the demand for innovation.

Strong management also provides the necessary pressure that drives the demand for innovation. As customers, good managers drive the requirement for innovation by suppliers; this, in turn, drives overall demand for innovation. Good managers also pressure industry rivals to be innovative in order to succeed – in fact, to survive.

Management skills are important enablers that support the supply of innovation. Management skills are critical to organizing R&D efforts, for setting priorities, developing strategies, and acquiring resources. Good

Exhibit 1 **Pressure and Support drive all three elements of the Innovation System**



Source: Institute for Competitiveness & Prosperity.

management skills also provide the pressure to ensure high quality resource allocation decisions among competing priorities for research funding.

Management capability is also important for the financing of innovation. Financiers of innovation require both solid scientific knowledge and management skills. Strategic capabilities provide critical support to high quality financing decisions. These skills are also important to provide the pressure for developing creative, but realistic, business plans for profitable commercialization of research knowledge.

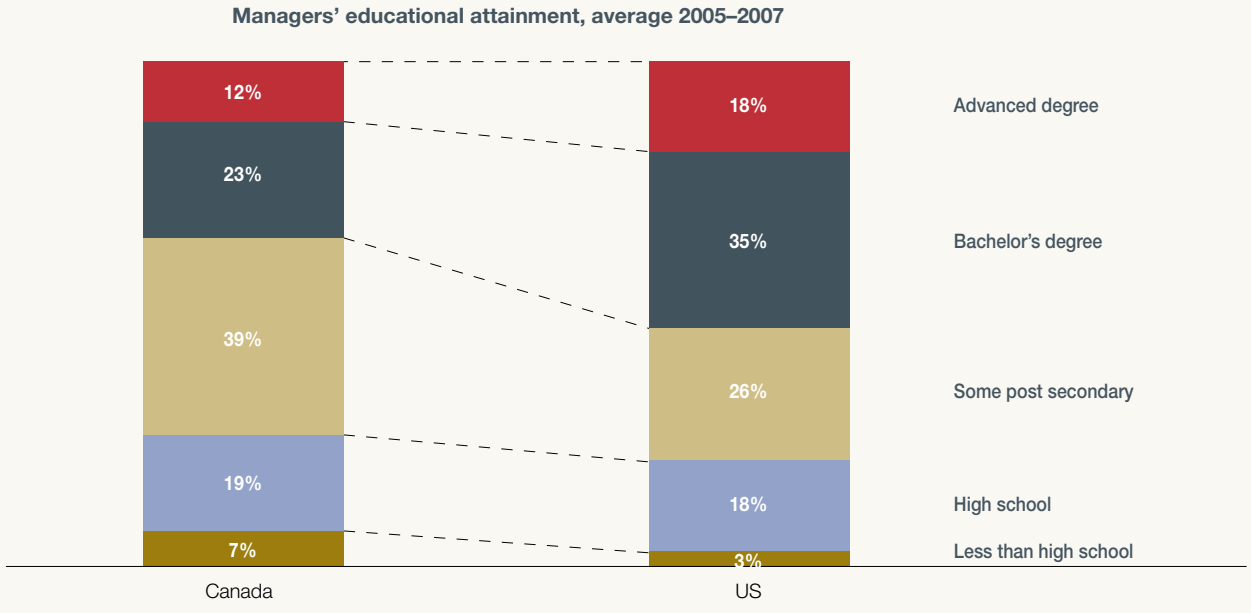
Hence, in building an innovative firm or an innovative economy, management talent matters. Senior management in our firms can develop strategies for which innovation is a critical component. Firms following innovation strategies aim at creating and selling a unique product or service or creating a uniquely valuable process for delivering an existing product or service or both. Firms such as RIM and Cognos would be in the former group. Firms such as Cott and Four Seasons would be in the latter group using unique and superior processes for creating products and services not technically dissimilar to those of competitors.

Our research into high technology firms in Canada shows that, as these firms succeeded and matured, the importance of technical skills at the top of the organization was matched by the importance of other skills, including management capability.[3] And below the CEO level, evidence is mounting that the economy is requiring greater numbers of sophisticated conceptual thinkers and those with the strong cognitive and people skills needed to lead innovation and upgrading.

Canada lacks sufficient sophisticated management capabilities

An important opportunity for improving Canada's innovation and productivity performance is in strengthening our management talent in our economy. Our managers generally have significantly lower educational attainment than their US counterparts, and CEOs of our largest corporations are less likely to have formal business education at the graduate level.[4] Only 35 percent of our managers possess a university degree versus 53 percent of US managers (*Exhibit 2*).

Exhibit 2 **Canadian managers are less well educated than their US counterparts**



Source: Institute for Competitiveness & Prosperity based on Statistics Canada, *Labour Force Survey,* and U.S. Bureau of Labor Statistics, *Current Population Survey*

[3] The Strategic Counsel, "Assessing the Experience of Successful Innovative Firms' in Ontario," September 2004, Research conducted for the Institute for Competitiveness & Prosperity, p.31. Available at http://www.competeprosper.ca/images/uploads/InnovationInterviewStudyRep.pdf.

[4] Institute for Competitiveness & Prosperity, Working Paper 6, *Reinventing innovation and commercialization policy in Ontario*, October 2004, p. 40.

If the link between education and innovation can be drawn, it is apparent why we are less demanding of innovation in Canada. The more educated managers are, the more likely they are to think innovatively and strategically and to operate more effectively. The lower education level of our human capital resources means we are less able to compete in a technology-based knowledge economy and to serve sophisticated and demanding customers in the global marketplace. At the pinnacle of Canadian corporations, we find a lower incidence of MBAs than in the United States.

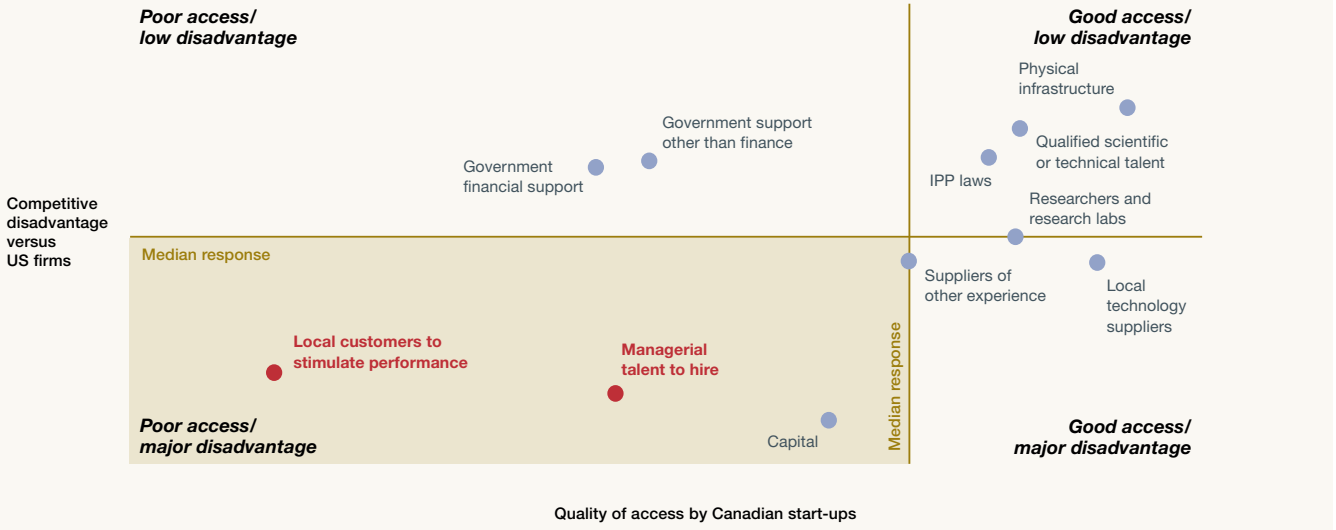
Innovative firms report disadvantages in management as a key constraint. In 2004, we conducted research through The Strategic Counsel among successful innovative firms in Ontario. These firms were identified by Thomson Macdonald from public information sources as having successfully made the transition from startup to public ownership.[5] The Institute found that one of the most significant challenges they faced in their development was in gaining access to "managerial talent to hire."[6] Importantly, this challenge was perceived to be a significant disadvantage for them against their most important competitors, who tended to be in the United States (*Exhibit 3*).

Eleven resources were mentioned in the survey. Survey respondents indicated that six of these resources were relatively available in Ontario and did not represent a major disadvantage versus their competitor – physical infrastructure, qualified scientific or technical talent, IPP laws, researchers and research labs, local technology suppliers and suppliers of other expertise.

Two resources, government financial support and government support other than finance, were seen to be of relatively low availability but did not represent a significant weakness versus competitors.

Finally, three of the eleven resources were of relatively low availability and represented a major weakness versus competition. Two of these, local customers to stimulate performance and managerial talent to hire, have not been significant targets of public policy, while the third, capital, has been a major priority. These results indicate that the lack of beneficial support from managerial talent is an important gap for growing innovative firms in Canada.

Exhibit 3 Access to management talent is a key weakness for Canadian innovative start-ups relative to US competitors



Source: The Strategic Counsel, *Assessing the Experience of Successful Innovative Firms in Ontario*, September 2004, a report sponsored by the Institute for Competitiveness & Prosperity, available at http://www.competeprosper.ca/research/InnovationInterviewStudyRep.pdf

[5] The Strategic Counsel, "Assessing the Experience of Successful Firms in Ontario."
[6] Roger Martin and James Milway, *Strengthening management for prosperity*, Institute for Competitiveness & Prosperity, May 2007, p. 11.

When we review degrees granted by field of study, Canada under performs significantly in business degrees (*Exhibit 4*). But our under performance in business graduates is not a reflection of the lack of demand by Canadian students. A study coordinated by the Institute for Competitiveness & Prosperity and conducted by the Ontario Ministry of Economic Development shows that it is more difficult to gain access to a university undergraduate business program than to engineering or arts and science.[7]

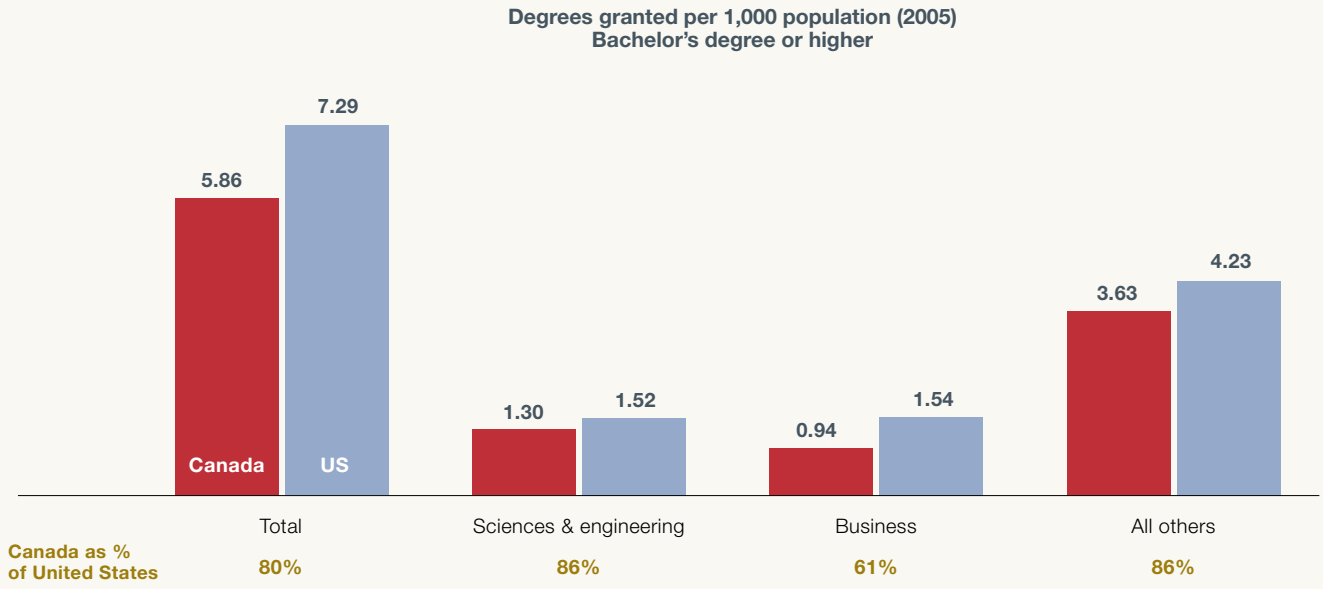
In summary, a key part of the solution to Canada's under performance in prosperity is attributable to its lack of management talent. Management skills are a critical complement to science and engineering skills in creating a high quality supply of innovation, driving sophisticated demand for innovation, and putting in place the required quantity and quality of financing to make the Innovation System work effectively.

Management innovation delivers higher productivity

Contemporary research often focuses on two measures of productivity: output per unit of labour input, such as hours worked or employment; and total factor productivity (TFP), which measures the extent to which actual economic output is higher than capital and labour employment data would suggest. Many researchers and policy makers believe that productivity changes are intimately linked to changes in technology in the traditional sense; that is, productivity growth results from improvements in machinery, equipment, or techniques of production. In other words, higher R&D leads to higher productivity.

Professor Michelle Alexopoulos and Trevor Tombe of the University of Toronto present an alternative, though less intuitive, view. In a forthcoming paper,[8] they argue that anything that improves producers' *ability to transform* inputs into final goods and services deserves the title "technology." For them, productivity is indeed influenced by the traditionally understood types of technology, what they call *tangible* technologies, such as machinery and new products. But productivity is also influenced by *intangible* technologies, such as management techniques and production processes (*Exhibit 5*). It is important to distinguish between these two types of technologies, since they affect the types of policies governments may want to put in place.

Exhibit 4 **Canada produces far fewer business graduates than the United States**



Source: Association of Universities and Colleges of Canada (AUCC) analysis, based on data from Statistics Canada.

[7] *Ibid*, p. 17.
[8] M. Alexopoulos and T. Tombe, "Management matters," Manuscript, University of Toronto, 2009.

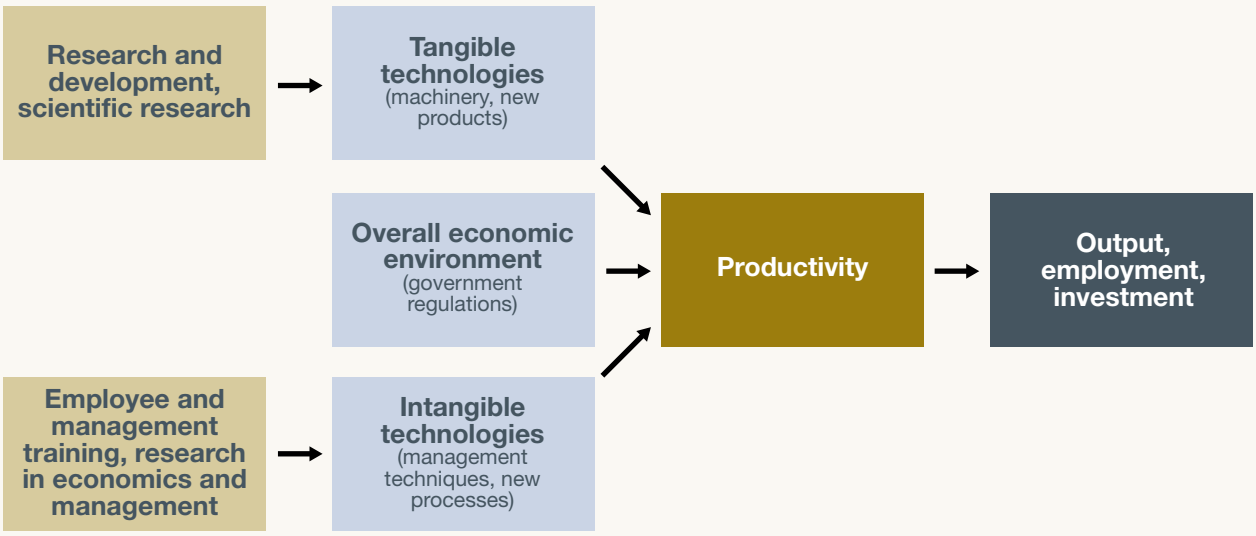
Emphasizing only the tangible technologies, government policies have heavily favoured R&D incentives, but neglected the development of intangible processes and management techniques. Governments have shown this favouritism through granting tax credits for companies, providing direct funding for R&D projects in academic and corporate settings, and encouraging science and engineering training at various post secondary institutions. While these are certainly important productivity enhancing policies, their research shows that policies aimed at improving management and developing new production processes may also lead to a significant improvement in productivity.

To illustrate the potential importance of this intangible channel, consider the statistics on natural science and engineering graduates across the OECD countries. Even though the United States is the acknowledged leader in productivity growth and technological breakthroughs, the US does not produce the most scientists and engineers per capita. This indicates that the explanation for cross-country productivity differences must be linked to other factors, such as social infrastructure, intangible technologies, and government policies.[9]

Another hypothetical example further clarifies the importance of intangible technologies in driving economic performance. If the use of traditional tangible technologies is at roughly the same rate here as in the US, the value of our TFP relative to that in the United States should be approximately the same. But as Alexopoulos points out, our TFP is only 75 percent of the US TFP rate. It is unlikely that the full difference can be explained by lower use of tangible technology. Assuming we are using similar traditional technologies, the difference in TFP value is mainly due to efficiency differences attributable to our under use of productivity enhancing intangible technologies. Thus, she concludes, Canadian policy makers ought to consider new ways of improving implementation and more efficient utilization of existing technological innovations. This will require extremely capable management talent in all industries.

In fact, many economic theories indicate that changes in intangibles – such as corporate work rules, team structures, communication channels, morale, or managerial

Exhibit 5 **Both tangible and intangible technologies influence productivity**



Source: M. Alexopoulos and T. Tombe, "Management matters," Manuscript, University of Toronto, 2009.

[9] Roger Martin and James Milway, *Strengthening management for prosperity*, p.15.

leadership – raise productivity and workforce efficiency. While this is not a controversial statement, quantifying the effect of improvement in management techniques at the aggregate level is extremely difficult because of measurement issues.

Outside theoretical models, much of the research in this area is in the form of case studies. While these types of in-depth studies may be useful in determining which techniques may be beneficial for certain types of firms, proving an unambiguous causal connection between technique adoption and firm performance or, more important, economy-wide productivity is hard to do.

A recent study to determine the underlying factors of a business firm's strategic ability, profitability, and longevity was conducted by Rotman School of Management professor Avi Goldfarb and University of Arizona assistant professor Mo Xiao.[10] They investigated the US telecommunications industry immediately following a large liberalization of government restrictions in 1996, looking at entry and exit decisions among firms in various markets. The study demonstrated that managers with business or economics degrees, versus engineering or science degrees, have higher levels of strategic ability. But this higher ability is unrelated to obtaining these degrees from a top-tier institution. This suggests that government policy to increase business and economics graduates at all schools may be effective at improving the competitive ability of Canadian firms.

Another line of research investigates the extent to which new management techniques are fads or fashions, proliferated mainly by gurus or consultants, by examining the pattern of article counts in business journals and trade publications.[11] The authors of these studies argue that companies move from fad to fad with no real productivity gain, because managers adopt techniques to be at the "frontier." Since many management techniques may only yield performance gains after a period of learning and integration with business strategies and operations, this behaviour would likely cause many techniques to be abandoned by myopic decision makers prior to the realization of their potential.

Alexopoulos and Tombe argue, however, that a more optimistic view of these patterns would lead to a much different conclusion. Instead of completely abandoning existing techniques for the next fad or fashion, since one size does not fit all, managers could tailor new techniques to their specific organizations. Productivity gains could occur over time by using aspects of a new technique that work well and abandoning those aspects that do not. This refinement of previously introduced techniques could continue, even as managers adopt new techniques. Thus their management style would evolve over time in a beneficial way, and new techniques are likely to be productivity enhancing overall.

The objective of publishing, they argue, is to disseminate information and educate managers about new techniques. Once managers have sufficiently understood them, there is little else to convey, and publication counts proceed to other topics. This does not imply that no one is adopting or using the technique – it only implies that the information is sufficiently available. To illustrate this point more clearly, consider publications on penicillin. No one will question the vast use of this drug today. However, searches for current articles on penicillin uncover topics dealing with drug resistance, for example, but generally not about how penicillin is used to treat traditional bacterial infections, as this is already well understood.

Professor Alexopoulos has introduced management book counts as a new measure of the dissemination and adoption of new managerial techniques and demonstrated that changes in these techniques are an important factor in US productivity growth. She used Library of Congress (LOC) book publication records to define adoption of management techniques. She argues that the LOC records, while correlated with journal counts, provide a superior source of information on management technique adoption.[12]

To create new annual publication-based measures for these intangible technologies from 1929 to 2002, she made use of the information contained in the LOC Machine Readable Catalogue (MARC) records for management book publications. The information contained in MARC records includes the number of new titles copyrighted each year on various subjects. She focused on new management titles (excluding new editions), published in English within the United States to determine the initial adoption dates and diffusion patterns for major management innovations over the twentieth century.

[10] Avi Goldfarb and Mo Xiao, "Who thinks about the competition? Managerial ability and strategic entry in US local telephone markets," NET Institute Working Paper #08-21, 2007.
[11] Eric Abrahamson and Gregory Fairchild, "Management fashion: Lifecycles, triggers, and collective learning processes," *Administrative Science Quarterly*, 1999, 44(4), p. 708–740.
[12] M. Alexopoulos and T. Tombe, "Management matters."

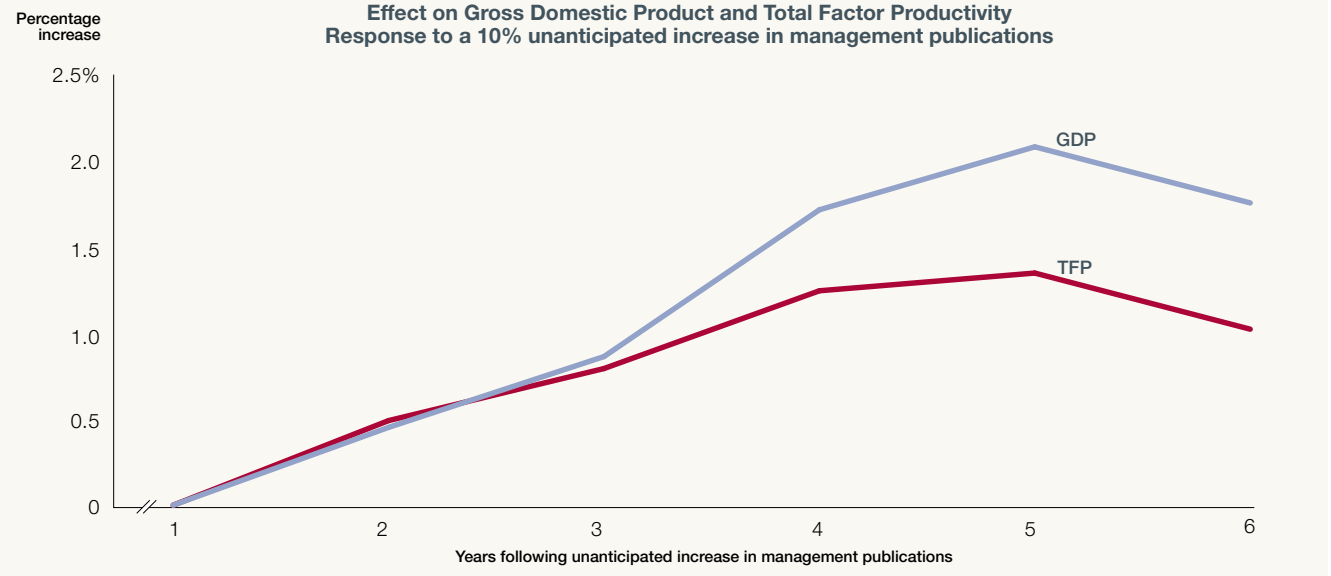
With the index of management book publications serving as a proxy, regression analyses reveal that available management books are positively associated with growth in an economy's TFP and GDP. In particular, following the introduction of a new management technique that causes a 10 percent increase in new management books, GDP and TFP grow at statistically significant higher rates than average for approximately six years. In fact, the impulse response estimates suggest that by year five, GDP would be 2.1 percent higher and TFP would be 1.4 percent higher in an economy with management techniques innovation (*Exhibit 6*).

To put this into perspective, a 2 percent increase in our GDP per capita would increase average disposable income per family by $1,400 in Canada and Ontario.[13] Alexopoulos does not suggest that the research definitively leads to a direct impact – but it does suggest that improved management has a significant effect on a region's or nation's prosperity.

As we have shown before, fewer Canadian corporate leaders have formal business or economics training than their US counterparts.[14] In fact, Canada also lags behind the US in terms of funding for business school training and research in managerial and administrative fields and economics. Professor Alexopoulos' research suggests that an important factor in closing the productivity gap between Canada and the United States is increasing the managerial ability within Canadian firms and providing additional resources to support research and development of new managerial techniques.

She concludes that Canadian managers, no doubt, have access to the same resources as our American neighbours, but many lack the expertise to employ the most productive management innovations. Increasing the number of graduates from economics, business, or management programs and raising funding for research in business management and related fields may help alleviate this deficiency. This kind of "business R&D" is to management what science is to engineering, and deserves more attention from the government.

Exhibit 6 **Introduction of new management techniques is associated with subsequent increases in productivity and prosperity**



Source: M. Alexopoulos and T. Tombe, "Management matters," Manuscript, University of Toronto, 2009.

[13] Calculation based on a 2 percent increase in the Canadian 2007 income per capita given personal disposable income as a % of GDP, and average household size.
[14] Roger Martin and James Milway, *Strengthening management for prosperity*, p. 11.

Management talent has impact on regional prosperity

In another study, researchers Richard Florida and Kevin Stolarick with the University of Toronto's Martin Prosperity Institute, along with Charlotta Mellander, of the Prosperity Institute of Scandinavia at Jönköping International Business School, recently examined the factors that shape economic development in Canadian regions.[15]

Using statistical techniques, they isolated the effects of various elements of Richard Florida's 3Ts – technology, talent, and tolerance – on regional prosperity. While the purpose of the study was much more broadly based than the impact of management on prosperity, their findings shed light on the subject.

Florida, Stolarick, and Mellander developed a stage-based general model of regional development, assessing the direct and indirect effects of groups of variables with each other in steps. In the first stage, they examined how factors such as **tolerance**, universities and consumer service amenities affect the location of **talent**, measured by the educational attainment of the population and by the percentage of workers in creativity-oriented occupations. In other words, how does talent drive income in a region and what attracts talent to a region? In the second stage, they looked at how the concentration of talent, in turn, affects **technology**, the presence of high tech workers and patent output. And finally, in the third stage, they examined the effects of technology, talent, and tolerance on regional income. They used structural equations and path analysis models to examine the independent effects of human capital, the creative class, technology, tolerance, and other factors on both wages and incomes across Canada's forty-six city-regions (Census Metropolitan Areas or CMAs).

In the first set of questions, consistent with the findings of Florida *et al*. in previous research,[16] they found that talent, as measured both by educational attainment and by the proportion of workers in creativity-oriented occupations, has a direct effect on regional income. Human capital and the proportion of creativity-oriented occupations in a city-region are positively affected by openness toward the gay and lesbian population. Tolerance toward immigrants and visible minorities is directly associated with higher regional incomes.

The researchers then looked deeper into creativity-oriented occupations to determine which, if any of these occupations are more closely related to regional per capita income. They explored six occupational groupings and found three of them – "management," "business and finance," and "scientific" occupations – had positive and significant direct relationships with regional income. They found no significant relationship for "health," "education," or "arts and culture" occupations with regional income. In fact, the presence of two of these three occupational groups affected regional income indirectly. Greater presence of workers in educational and arts occupations attracts technology workers, which in turn increases regional income levels. The researchers found no positive impact, directly or indirectly, on regional technology or income.

The research by Florida *et al*. supports the conclusion that regional prosperity is the result of both management and scientific talent. This supports our own findings that innovation is not the result of one discipline or the other; instead, it is the result of effective collaboration between the two.

The impact of management capabilities on regional prosperity has not been thoroughly studied. Our research and that of others indicate that management matters. The development of improved management techniques, their diffusion, and their implementation by capable managers lead to higher prosperity.

[15] Richard Florida, Charlotta Mellander and Kevin Stolarick, "Inside the black box of Regional Development: Human Capital, the creative class and Tolerance," *Journal of Economic Geography*, 2008, pp. 615–649.
[16] Martin Prosperity Institute, *Ontario in the Creative Age*, February 2009, Toronto, pp. 5-8.

Management practices can be measured

CLEARLY, GOOD MANAGEMENT is an important factor in firm productivity and, to the extent that a region's firms are well managed, overall productivity and prosperity will be higher. But economists and management researchers have paid little attention to measuring effective management practices and their impact on firm productivity. A major stumbling block has been the lack of useful, consistent measurements of the quality of management across firms and countries. While researchers recognize the importance of effective management, they typically refer to it as an empirically unobservable variable in their research to account for the differences in productivity across firms within the same country and industry.

To fill this research gap, professors Nick Bloom, John Van Reenen, and Raffaella Sadun developed a methodology to measure management practices within a manufacturing operation.[17] They have applied this methodology since 2004 and have interviewed firms in fifteen countries, including developed economies, such as the United States, Germany, and Japan, and developing economies like China, India, and Brazil.[18] The Institute collaborated closely with Professor Bloom to interview Canadian firms through the summer of 2008.

Bloom, Van Reenen, and Sadun's method to measure management practices in the firm is based on an interview evaluation tool that scores firms on a scale from worst practice to best practice across eighteen management practices, developed originally by McKinsey & Company, a leading international management consulting firm. The management practices cover three distinct, but related areas of management:

- **Adopting effective operations management approaches.** How well have firms implemented manufacturing management systems that are generally regarded by academics and consultants as best practice? "Lean Manufacturing" is generally regarded as the most effective management system. Based on the production methods developed by Toyota, but applicable beyond the automotive industry, Lean Manufacturing achieves highly efficient production through a relentless drive to reduce waste of time and materials. It is characterized by an ethos of continuous improvement backed by close tracking of the operation to identify problems and improvement opportunities.

- **Managing targets effectively.** Do firms' management teams set realistic stretch targets, monitor performance against these targets, and take corrective action when necessary? Effective management in this area means that companies are finding the right balance of targets to aspire to for maximum achievable performance. Setting targets too low means under performance; setting them too high will discourage improvements by workers and managers. Effective management also means determining how to measure performance and to follow through with actions when targets are not met.

- **Managing people well.** Are companies promoting and rewarding employees based on performance, and systematically trying to hire and keep their best employees? The cliché that people are a firm's most important asset is true. Skilled workers and effective people management together are an important element of productivity in firms and across the economy. Well managed firms are able to attract and retain their top talent through effective reward and incentive programs. They also deal effectively with problem performers.

The research process was designed according to rigorous academic research standards developed by

[17] Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries" NBER WP 12216.
[18] At the time of our analysis, data for Korea, Brazil, and Ireland were not available. Our analysis includes the data for twelve other countries, graciously provided by Nick Bloom.

Professor Bloom and his team. Our analysts, who were business and economics students, were trained to conduct the interview consistent with analysts in other countries. We randomly selected manufacturing companies for telephone interviews from comprehensive industry lists. The distribution of completed interviews across Canada's four regions matches the distribution of actual manufacturing companies in Canada. The analysts conducted phone interviews that lasted an average of forty-seven minutes with the most senior production manager available at each plant. Through a series of structured, but open-ended questions, the analysts scored each company across eighteen factors on a scale of 1 to 5, with 5 being best practice. These results generated scores on each of the three factors described above, which in turn generated an overall score for the quality of management at the operation.

Analysts also "double scored" nearly three-quarters of the interviews. That is, while one analyst conducted the interview, another, who was not taking part in the interview, listened and independently scored the company. Subsequent comparisons of the scores showed a high degree of consistency between analysts.

The Canadian sample of 421 companies is one of the largest of all countries studied across the world. We conducted interviews from June to August 2008 from a central location in Toronto. To ensure the comparability of the Canadian scores with the previous years' scores, our analysts also interviewed 60 US companies. The scores of our random sample of US companies were consistent with the scores from the earlier research by Bloom *et al*.[19] Thus we can conclude that the Canadian interviews were scored in the same way as those in other countries, and therefore are comparable to the rest of the sample.

Lean Manufacturing is operations management best practice

Lean Manufacturing is an example of a best practice operating strategy that management needs to adopt to maximize the efficiency of the production process. Simply put, it is about producing more value with less work, space, time, and money. Managers and senior executives who adopt the Lean approach employ its principles through tools and methods that help improve production flow, reduce non-value-adding activities, detect and prevent problems early, and eliminate defects or errors. Companies successful at implementing Lean principles are often able to reduce costs and lead times significantly while improving process efficiency and product quality. Toyota, Caterpillar, Boeing, Intel, and Nike are among the many companies that have profited from "going Lean."

Lean Manufacturing began in Japan

The key principles behind Lean Manufacturing are not really new. They represent the evolution and synthesis of concepts that can be traced back to the ground breaking ideas of business thinkers like Frederick Taylor, Henry Ford, and W. Edwards Deming. These thinkers laid the foundation for Lean Manufacturing's most important precursor and greatest source of inspiration: the Toyota Production System (or TPS).

Created in the 1950s by Taiichi Ohno, of the Toyota Motor Corporation, the TPS was conceived in response to Japan's industrial and market conditions following the Second World War. Recognizing that company resources and consumer demand were both low, Toyota management knew they needed to adopt a new manufacturing model for the company to survive. The old Ford model of mass production and economies of scale was simply not feasible given the state of Japan's postwar economy.

The task to find a new system fell on Ohno, then a plant manager. He journeyed to the United States to search for inspiration and finally found what he needed in an unlikely place: a supermarket named Piggly Wiggly. He was impressed by how the supermarket only reordered and restocked goods as customers bought them. Ohno realized that this principle could be applied to the manufacturing process itself. Instead of trying to push the product on customers to meet sales targets, the process could be restructured so that customers pulled the flow of production, thereby eliminating wasteful over production and unneeded inventory – a concept known as "just-in-time" production or JIT. It was just the insight needed when Toyota's finances were strapped and its customers sparse.

[19] Nick Bloom, Stephen Dorgan, John Dowdy, John Van Reenen, "Management Practice & Productivity: Why they matter," London, UK, November 2007, available online at: http://www.stanford.edu/~nbloom/ManagementReport.pdf.

JIT became a central pillar of Toyota's postwar manufacturing strategy. The TPS fueled Toyota's rise to become one of the auto industry's leading global companies. Eventually, the Americans took notice and began investigating the reasons behind Toyota's remarkable ascension. In the late 1980s, "Lean" began to be used by researchers to describe Toyota's approach, and in 1990 "Lean Manufacturing" became an established industry concept after James Womack, Daniel Jones, and Daniel Ross popularized the term in their book *The Machine That Changed The World*, which summarized the results of their in-depth study of the global auto industry and recognized Lean production as the key to Japan's success.

Lean Manufacturing eliminates waste

At the core of Lean Manufacturing is a dedication to the elimination of waste. The major types of waste targeted by the Lean approach include over production, unnecessary transport, under used employees, excess inventory, and product defects. To identify and then eliminate these forms of waste, managers have at their disposal several tools and methods developed to implement Lean principles. Prominent examples of these include Kanban, 5S, Value Stream Mapping, Six Sigma, and Kaizen Blitz. Three of the more popular techniques are detailed here:

- **Kanban** is a scheduling system in which signals (often either an electric signal or a special card) are used to indicate the need to replenish a unit or part somewhere in the supply chain. A Kanban system works much like a modern supermarket. In a supermarket, information collected by the checkout scanners about what goods have sold is immediately conveyed to the supermarket's regional warehouse, whereupon the warehouse prepares a same-day shipment of the exact items needed to replenish the sold stock. By ensuring that the supply of goods is pulled by the actual demand of customers – as opposed to forecast or estimated demand – inventory levels are kept low and space is conserved.

- **5S** is a method of organizing and managing the workplace to improve worker efficiency and increase morale. "5S" stands for five Japanese words that start with the letter "S," each representing an operation that promotes workplace order and worker efficiency. In English, the five Ss are: Sort, Shine, Set, Standardize, and Sustain. "Sort" means to go through the workplace and throw out anything unnecessary so that only essential items are left. "Shine" dictates that the workplace should be regularly and systematically cleaned so as to keep the work environment neat, orderly, and attractive. "Set" implies that tools, equipment, and parts should all be arranged in locations that are easily accessible and promote workflow. "Standardize" signifies that work practices should be clearly defined and standardized such that consistency and efficiency are maintained. Finally, "Sustain" indicates that the previous four Ss should be made an integral part of the organization's culture so that the standard they set is maintained and even made into a "way of life."

- **Value Stream Mapping** is a tool for analyzing the flow of the production process from the original supply of information and materials through to the end product delivered to the customer. Either by hand or with the help of specialized software, a map is drawn that visually represents all the steps or actions taken to bring about the creation and delivery of the final product. The map should be as exhaustive and precise as possible in order to maximize its utility. After mapping the production process, the results are analyzed to see where flows can be improved, lead times shortened, and wasteful activities eliminated.

Today, management practices can be measured. Using a methodology applied across fifteen countries, we conducted in-depth research to measure best practices in manufacturing operations across Canada. Lean Manufacturing is one best practice that has been implemented in firms around the world, improving productivity and contributing to higher overall economic performance.

INTERNATIONAL MANAGEMENT RESEARCH COMPARES

BEST PRACTICES ACROSS MANUFACTURING FIRMS

For each measure in the study, we define the best practice and provide an example, drawn from the more than 4,000 interviews that have been conducted around the world.*

Operations management best practices

ADOPTION OF LEAN MANUFACTURING

Has the firm implemented all the major aspects of Lean Manufacturing? For instance, just-in-time delivery, Kanban, 5-S principles, continuous improvement, root-cause analysis, etc.

> *Example of best practice:* A firm has formally introduced all major elements of modern production. It reconfigured the factory floor based on Value Stream Mapping and 5-S principles, broke production into cells, eliminated stockrooms, implemented Kanban, and adopted Takt time analyses to organize workflow.

RATIONALE FOR ADOPTION

What was the reasoning behind the adoption of any or all Lean Manufacturing techniques? Were managers behind the pack and implementing changes because all their competitors were doing it? Did managers believe it would reduce costs and thus decided to make the switch? Or did Lean Manufacturing fit the businesses goals, which often include increasing quality, reducing waste, and reducing injuries while increasing profits?

> *Example of best practice:* A firm implemented Lean techniques because the COO had worked with them before and knew that they would enable the business to reduce costs, compete with cheaper imports through improved quality, flexible production, greater innovation, and JIT delivery.

* Nick Bloom and John Van Reenen, "Measuring and explaining management practices across firms and countries," *Centre for Economic Performance Discussion Paper 716*. Available online at http://cep.lse.ac.uk/pubs/download/dp0716.pdf. Further examples are available on Nick Bloom's website, http://stanford.edu/~nbloom/index_files/Page371.htm

PROCESS PROBLEM DOCUMENTATION

If a problem in the manufacturing process occurs, what happens? Do managers wait for problems to happen to address them or do they search for ways of improving processes and avoiding potentially costly delays? Is there a specific way that shop floor workers, who are in the most direct contact with the production line, can suggest process improvements? A number of companies had suggestion boxes where employees could drop off process improvement suggestions, which is encouraging. However, only a small number of companies actually had a process in place where they routinely reviewed the suggestions and rewarded employees whose suggestions were implemented. Instead of waiting for problems to happen, managers should continuously try to improve the flow of the shop floor by monitoring potential issues and any concerns/suggestions from the front line workers.

> *Example of best practice:* The employees of a firm constantly analyze the production process as part of their normal duty. They film critical production steps to analyze areas more thoroughly. Every problem is registered in a special database that monitors critical processes and each issue must be reviewed and signed off by a manager.

OPERATIONS PERFORMANCE TRACKING

What types of Key Performance Indicators are the managers tracking? For example, do managers only track sales and output per day or does the set of KPIs include a comprehensive list of all productivity factors? And are these KPIs available for all to see, or is it only the senior managers who are privy to this information?

> *Example of best practice:* A firm has visual displays or screens that display progress against daily target and other performance indicators. The manager meets with the shop floor workers every morning to discuss the day past and the next one and uses monthly company meetings to present a larger view of the goals to date and strategic direction of the business to employees. He even stamps napkins in the cafeteria with key performance achievements to ensure everyone is aware of a target that has been hit.

OPERATIONS PERFORMANCE REVIEW

How does the manager review Key Performance Indicators? Is there a meeting to review them? Who is involved in these meetings? Who gets to see the results of this review? What are the typical next steps after a meeting?

> *Example of best practice:* A firm tracks all performance numbers in real time (amount, quality, etc). These numbers are continuously matched to the plan on a shift-by-shift basis. Every employee can access these figures on workstations on the shop floor. If scheduled numbers are not met, action for improvements is taken immediately.

OPERATIONS PERFORMANCE DIALOGUE

Here managers are asked to describe a Key Performance Indicators (KPI) meeting. Is there a set structure to the meeting; for example, a set agenda used every week? If KPI data are needed to discuss specific issues, are the data always available? Do discussions lead to the root cause of problems? Is there a clear follow-up plan set?

> *Example of best practice:* A firm meets weekly to discuss performance with workers and management. Participants come from all departments (shop floor, sales, R&D, procurement, etc.) to discuss the previous week performance and to identify areas to improve. They focus on the cause of problems and agree on topics to be followed up the next week, allocating all tasks to individual participants.

CONSEQUENCE MANAGEMENT

How do managers deal with a business unit that is under performing? What are the consequences for the under performing unit? Are there parts of the business that seem to fail repeatedly to carry out agreed actions?

> *Example of best practice:* A firm takes action as soon as a weakness is identified. It has even employed a psychologist to improve behaviour within a difficult group. People receive ongoing training to improve performance. If this does not help, managers move individuals to other departments or even fire them if they repeatedly fail to meet agreed targets.

Performance management best practices

TYPES OF GOALS

What types of goals are set for the company? Are there specific goals for the plant? Are there any non-financial goals?

> *Example of best practice:* A firm gives everyone a mix of operational and financial targets. They have information boards that communicate financial targets to the shop floor in a way they found effective – for example, telling workers they pack boxes to pay the overheads until lunchtime and after lunch it is all profit for the business. If they are having a good day, the boards immediately adjust and play the "profit jingle" to let the shop floor know that they are now working for profit. Everyone cheers when the jingle is played.

INTERCONNECTION OF GOALS

Is there a clear motivation behind the goals? For instance, does the company clearly communicate goals such as "we want to be the leader in the industry," or "we want to keep waste at a maximum of 5 percent?" How are the goals cascaded down to the individual workers? For example, are workers aware of how their work fits within the larger framework of the company?

> *Example of best practice:* For a firm, strategic planning begins with a bottom up approach that is then compared with the top down aims. Multifunctional teams meet every six months to track and plan deliverables for each area. These are then presented to the area head who then agrees or refines them and then communicates them down to the lowest level of the organization. The goal is to ensure that all employees know exactly how they contribute to the overall goals so that they understand how important the ten hours they spend at work every day is to the business.

TIME HORIZON

What is the time-scale of the targets? Do managers focus more on short-term or long-term goals? Do the short-term goals form a "staircase" to the long-term goals?

> *Example of best practice:* A firm translates all their goals – even their five-year strategic goals – into short-term goals so they can track their performance to them. They believe that only when you make someone accountable for delivery within a sensible timeframe will a long-term objective be met. They think it is more helpful for employees to have a mix of immediate and longer term goals.

SETTING STRETCH GOALS

How tough are the goals? Do managers feel pushed by them? Are any goals obviously too easy or too hard? In other words, are there goals that are always met and some that are never met? Do all business units have the same level of difficulty in the targets or do some get off easy?

> *Example of best practice:* A manager of a UK firm insisted that he has to set aggressive and demanding goals for everyone – even security. If they hit all their targets, he worries he has not stretched them enough. Each KPI is linked to the overall business plan.

CLARITY OF GOALS

Does everyone in the plant know what their personal targets are? Does anyone complain that the targets are too complex – that is, not that they are too stretching, but that they are difficult to understand? Is performance between teams or shifts openly compared to others?

> *Example of best practice:* At a firm, self-directed teams set and monitor their own goals. These goals and their subsequent outcomes are posted throughout the company, encouraging competition in both target setting and achievement. Individual members know where they are ranked; their rankings are communicated to them bi-annually. Quarterly company meetings seek to review performance and align targets.

INSTILLING A TALENT MINDSET

Do senior managers discuss attracting and developing talented people? Do managers get any rewards for the talent pool they create?

> *Example of best practice:* A firm benchmarks human resources practices at leading firms. A cross-functional Human Resources excellence committee develops policies and strategies to achieve company goals. Bi-monthly directors' meetings seek to identify training and development opportunities for talented performers.

People management best practices

REWARDING TOP PERFORMANCE

How does the appraisal system work? How does the bonus system work? Are there non-financial rewards? How do these systems compare to the competitors' systems?

Example of best practice: A firm sets ambitious targets, rewarded through a combination of bonuses linked to performance, team lunches cooked by management, family picnics, movie passes, and dinner vouchers at nice local restaurants. They also motivate staff to try by giving awards for perfect attendance, best suggestions, etc.

ADDRESSING POOR PERFORMANCE

If a worker were continuously under performing, what is the course of action? How long would under performance be tolerated?

Example of best practice: At a firm, the manager fired four people during the last couple of months because they were under performing. Firm managers continuously investigate who is under performing and why.

PROMOTING HIGH PERFORMERS

If a worker is exceptionally good, can he or she move be promoted on a fast track? Are top performers routinely identified and developed? Is length of service unduly important in promotions?

Example of best practice: At a firm, each employee is assessed with a "red light" (not performing), "amber light" (doing well and meeting targets), a "green light" (consistently meeting targets), and a "blue light" (high performer capable of promotion of up to two levels). Each manager is assessed every quarter based on his succession plans and development plans for individuals.

ATTRACTING HIGH PERFORMERS

Does the company offer a distinctive work environment that is attractive to top talent?

Example of best practice: A firm offers a unique value proposition through development and training programs, family culture in the company, and very flexible working hours. It also strives to reduce bureaucracy and seeks to push decision making down to the lowest levels possible to make workers feel empowered and valued.

RETAINING HIGH PERFORMERS

What special practices are in place to retain top performers who want to leave the company?

Example of best practice: A firm knows who its top performers are and if any of them signal an interest to leave, it pulls in senior managers and even corporate HQ to talk to them and try and persuade them to stay. Occasionally, they will increase salary rates if necessary and if they feel the individual is being underpaid relative to the market. Managers have a responsibility to try to keep all high performers.

Canada's managers score well

CANADA'S MANAGEMENT practices score well by world standards. Across the thirteen countries where this research has been conducted, Canada ranks fourth, tied with Japan.[20] Statistically our results are the same as those in two other leading economies – Germany and Sweden. Like all other countries, we trail the United States significantly (*Exhibit 7*). This is similar to Canada's standing in GDP per capita – we are ahead or close to many of the world's advanced economies, but we trail the United States by a significant margin.

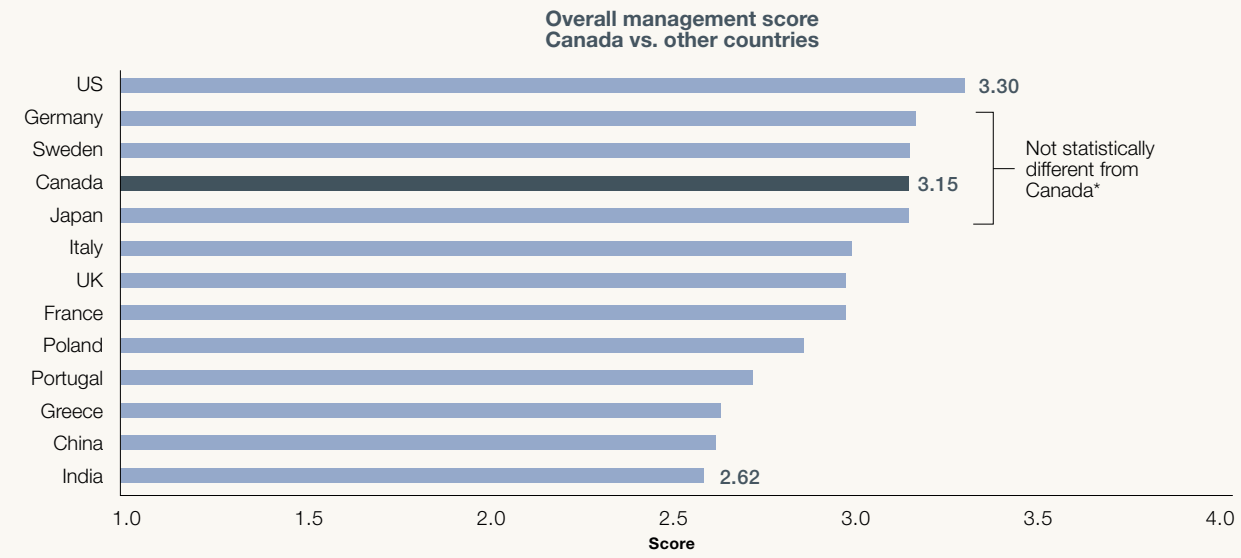
If we are to close Canada's prosperity gap with the United States, improving the management practices in our manufacturing sector represents a significant opportunity.

The research by Bloom *et al*. indicates that better management capability, as reflected by the overall management score from the study, is correlated with firm productivity, as well as country productivity.[21] In Canada, when management capabilities increase across manufacturing industries, value added per employee tends also to increase (*Exhibit 8*). We recognize that these results are indicative, not conclusive, and that correlation does not imply causality. Nevertheless, better management practices in an industry are associated with higher productivity.

Canada's standing: Where can we improve?

Overall, Canada is among the world's best in the management capabilities in its manufacturing industries. The overall management score is based on research results in three areas –

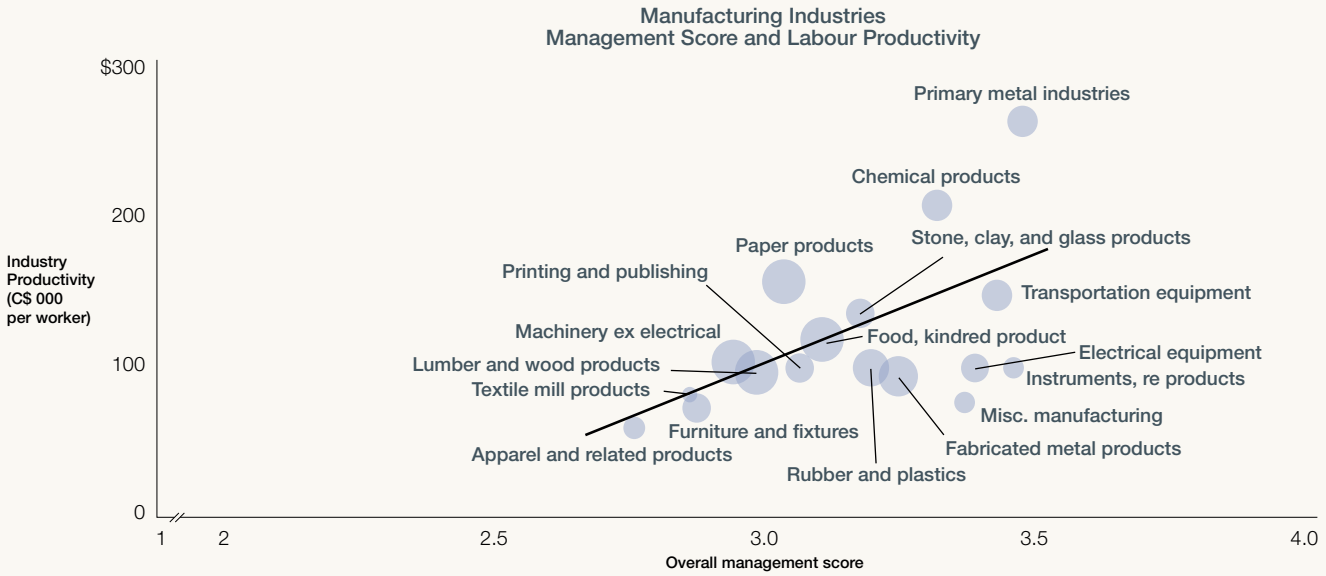
Exhibit 7 **Canada is among the world leaders in the overall quality of its manufacturing management, but trails the United States significantly**



* At the 10% 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; Institute for Competitiveness & Prosperity analysis.

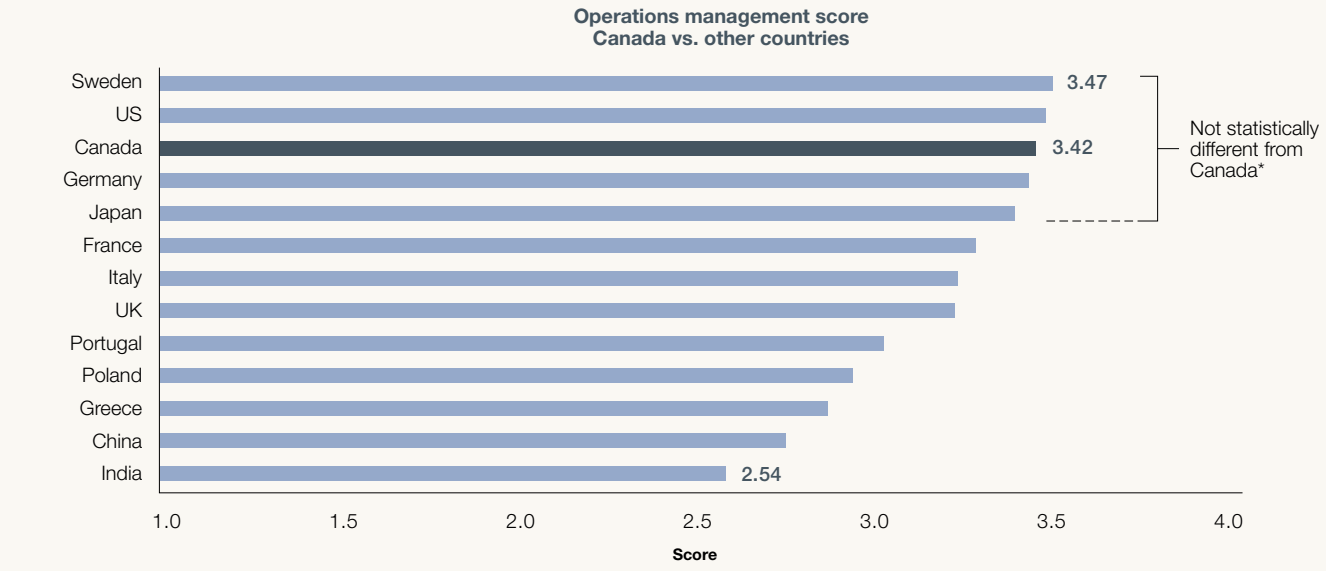
[20] The addition of Korea, China, and Brazil does not alter Canada's ranking data.
[21] Nick Bloom, Stephen Dorgan, John Dowdy, John Van Reenen, "Management Practice & Productivity: Why they matter."

Exhibit 8 **Better managed manufacturing industries in Canada tend to have higher labour productivity**



Note: Regression is based on weighting by number of firms in sample; size of circle represents number of firms in sample. Excludes Petrol and Coal products and Leather and leather products because the sample sizes were less than 5. R-squared: 0.33.
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; Institute for Competitiveness & Prosperity analysis.

Exhibit 9 **Canada ranks well in adoption and implementation of effective operation processes**



* At the 10% significance level.
Source: Nick Bloom and John van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; Institute for Competitiveness & Prosperity analysis.

operations management, performance management, and people management.

Operations management: Implementing "Lean Manufacturing" processes

In operations management, Canada ranks third in the world, but the score is not statistically significantly different from that in the United States or Sweden (*Exhibit 9*). Upon closer inspection, however, there is still much room for improvement, as we lag the leaders in most specific operations management areas.

The operations management index is based on seven questions. Canada is statistically behind the world's leaders in five of these areas but not statistically different in two (*Exhibit 10*).

Exhibit 10 **Canada lags world's best performers in most operations management questions**

Operations management	Canada statistically worse than best performer	Canada statistically no different than best performer	Canada's ranking in the world (out of 12 countries)
OVERALL SCORE		✓	3
Adoption of Lean Manufacturing ***Best practice:*** All major aspects of Lean have been implemented ***Worst practice:*** Other than just-in-time, no other aspects of Lean have been introduced	✓		4
Rationale for the adoption ***Best practice:*** Lean was introduced to meet business objectives ***Worst practice:*** Lean was introduced to catch up to competitors		✓	4
Process problem documentation ***Best practice:*** Exposing problems is integral to individuals' responsibilities rather than ad hoc solutions ***Worst practice:*** No process improvements are made when problems occur	✓		5
Operations Performance tracking ***Best practice:*** Performance is continuously tracked and communicated to all staff using a range of visual tools ***Worst practice:*** Tracking is ad hoc, and measures being tracked do not indicate directly if overall business objectives are being met	✓		4
Operations Performance review ***Best practice:*** Performance is continuously reviewed, based on indicators tracked; follow-up ensures continuous improvement ***Worst practice:*** Performance is reviewed infrequently and only success or failure is noted	✓		3
Operations Performance dialogue ***Best practice:*** Regular performance conversations focus on addressing root causes. Purpose, agenda, and follow-up steps are clear to all ***Worst practice:*** Relevant data are often not present at meetings or discussion is based on data that is not meaningful. Agenda and purpose are not clear	✓		3
Consequence management ***Best practice:*** Failure to achieve agreed targets drives retraining or moving individuals around. ***Worst practice:*** Failure to achieve agreed targets does not carry any consequences		✓	2

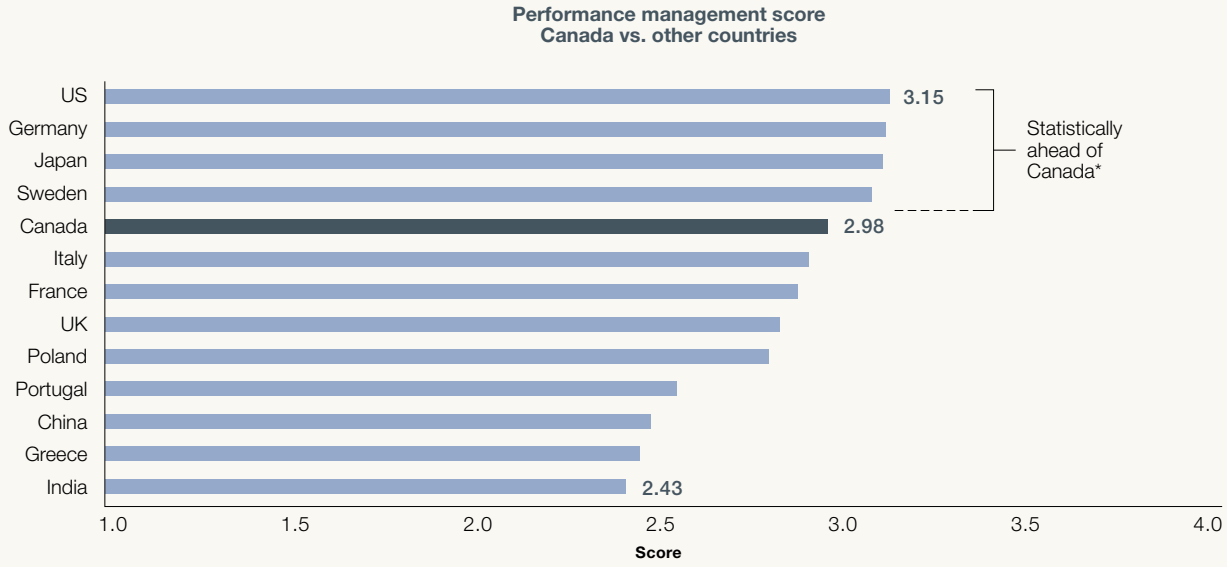
Source: Management Matters dataset, Institute for Competitiveness & Prosperity analysis. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007.

Performance management: Setting and managing effective goals

In performance management, Canada ranks fifth and is statistically significantly worse than the leading countries (*Exhibit 11*). Canadian managers are above average performers, but not in the top tier of countries. There is clearly room for improvement here, too.

Companies were scored on six questions related to setting and managing goals effectively. Canada trails significantly in all areas (*Exhibit 12*).

Exhibit 11 **Canada lags the leaders in the setting and effective management of goals**



* At the 10% significance level.
Source: Nick Bloom and John van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; Institute for Competitiveness & Prosperity analysis.

Exhibit 12 **Canada has improvement opportunity in performance management**

Performance management	Canada statistically worse than best performer	Canada statistically no different than best performer	Canada's ranking in the world (out of 12 countries)
OVERALL SCORE	✓		4
Types of goals ***Best practice:*** Goals are a balance of financial and non-financial goals ***Worst practice:*** Goals are exclusively financial or operational	✓		11
Interconnection of goals ***Best practice:*** Corporate goals increase in specificity as they cascade through the business units ***Worst practice:*** Individual workers are not aware of how their contribution is linked to corporate goals	✓		4
Time horizon ***Best practice:*** Short-term goals are set so that they become a staircase to reach the long-term goals ***Worst practice:*** Top management's main focus is on short term goals	✓		6
Setting stretch goals ***Best practice:*** Goals are demanding for all divisions, and are grounded in solid economic rationale ***Worst practice:*** Goals are either too easy or impossible to achieve	✓		4
Clarity of goals ***Best practice:*** Performance measures are well defined and well communicated; worker performance is made public to induce competition ***Worst practice:*** Performance measures are complex and not clearly understood; worker performance is not made public	✓		4
Instilling a talent mindset ***Best practice:*** Senior managers are evaluated and held accountable on the strength of the talent pool they actively build ***Worst practice:*** Senior management do not communicate that attracting, retaining, and developing talent is a top priority	✓		2

Source: Management Matters dataset, Institute for Competitiveness & Prosperity analysis. 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.

People management: Attracting and retaining top talent, addressing poor employee performance effectively

In managing people at manufacturing plants, Canada ranks second in the world, but is statistically significantly worse than the United States (*Exhibit 13*).

Companies were asked questions in five areas related to how well they manage their employees. Only in the area of attracting high performers did we achieve statistical parity with the best manufacturers (*Exhibit 14*).

Exhibit 13 **Canada leads the rest of the world in people management, but significantly lags the United States**

* Statistically ahead of Canada at the 10% significance level.
Source: Nick Bloom and John van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; Institute for Competitiveness & Prosperity analysis.

Exhibit 14 **Canada performs well against other economies in people management, but trails best performance**

People management	Canada statistically worse than best performer	Canada statistically no different than best performer	Canada's ranking in the world (out of 12 countries)
OVERALL SCORE	✓		2
Rewarding top performance ***Best practice:*** The firm provides ambitious stretch targets with clear performance related accountability and rewards ***Worst practice:*** People within the firm are rewarded equally irrespective of performance level	✓		8
Addressing poor performance ***Best practice:*** Poor performers are moved to less critical roles or out of the company as soon as weaknesses are identified ***Worst practice:*** Poor performers are rarely removed from their positions	✓		2
Promoting high performers ***Best practice:*** Top performers are actively identified, developed, and promoted ***Worst practice:*** People are promoted primarily upon the basis of tenure	✓		7
Attracting high performers ***Best practice:*** The firm provides a unique value proposition to encourage talented people to join the company instead of the competitors ***Worst practice:*** Competitors offer stronger reasons for talented people to join their companies		✓	3
Retaining high performers ***Best practice:*** Managers do whatever it takes to retain top talent ***Worst practice:*** Managers do little to try and keep the top talent	✓		4

Source: Management Matters dataset, Institute for Competitiveness & Prosperity analysis. 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.

Public policy and business strategies lead to strong management

Several other important factors influence the management and productivity of Canadian companies.

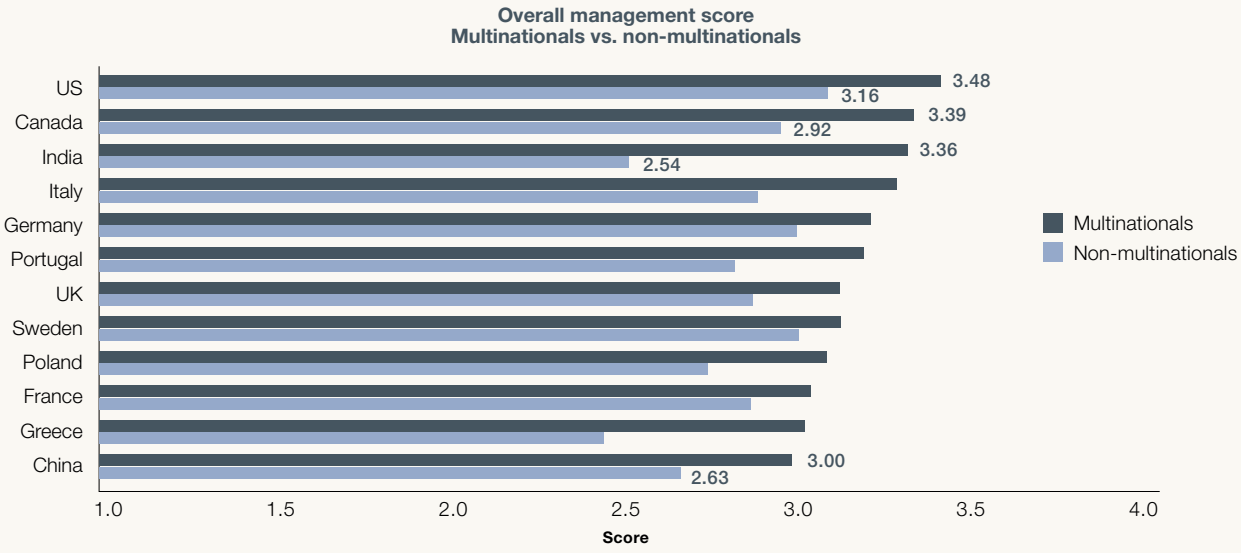
Multinationals matter

In previous work, we have cited the evidence that multinational firms out perform domestically focused firms on several dimensions – productivity, wages, and R&D.[22] Multinational firms have expanded because of superior business models. The management research indicates that multinational corporations are better managed than non-multinationals in all the countries researched (*Exhibit 15*). In fact, the average performance of multinationals operating in India (where domestic averages were near the bottom of performance) exceeded averages in all other countries except for North American multinationals operating at home. Across all countries, Bloom *et al*. find that "the presence of multinationals within a region serves to assist in the transfer of best practices to local firms both possibly through the migration of employees and knowledge and through commercial interactions between the two groups." [23] Further, they calculate the obvious effect of economies of scale – in other words, sheer company size – to account for only a quarter of the difference between multinationals and non-multinationals.

Ownership matters

Across the twelve countries, publicly-owned firms achieved significantly better scores than all other types of ownership (*Exhibit 16*). Bloom *et al*. conclude that this result strongly

Exhibit 15 **Multinationals out perform non-multinationals in all countries**



Note: Japan excluded due to low multinational sample size.
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; Institute for Competitiveness & Prosperity analysis.

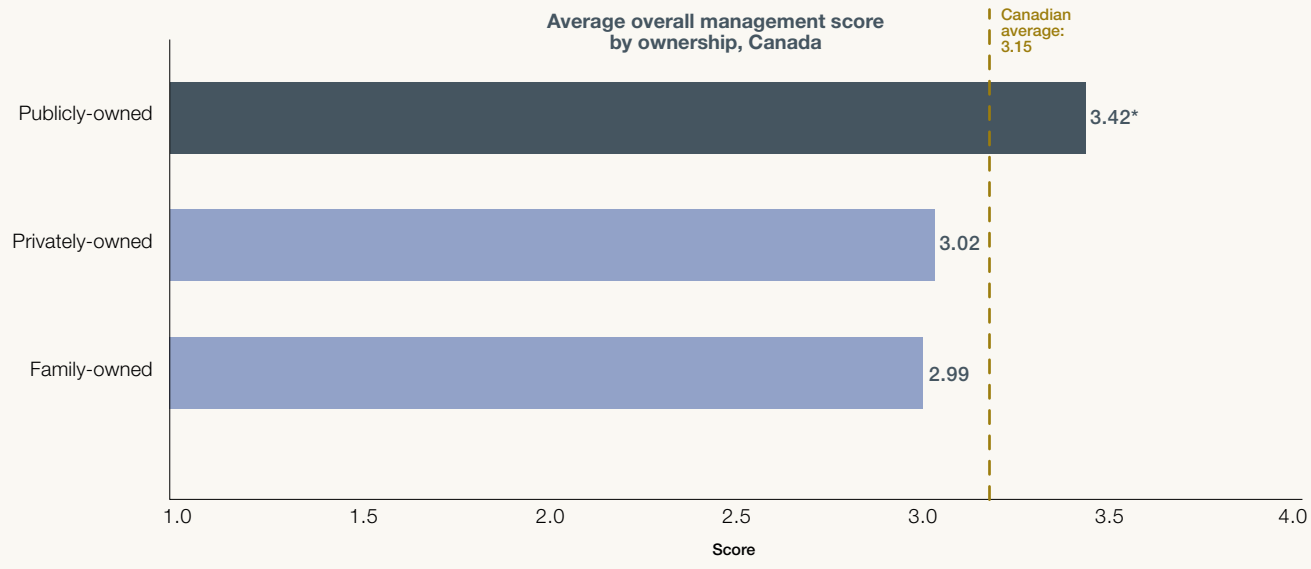
[22] Institute for Competitiveness & Prosperity, Working Paper 11, *Flourishing in the global competitiveness game*, September 2008, pp. 27-28.
[23] Nick Bloom, Stephen Dorgan, John Dowdy, John Van Reenen, "Management Practice & Productivity: Why they matter," p.7.

suggests that "a propensity to employ professional managers and to promote them on the basis of merit delivers better managed, better performing firms."[24] This result holds true in Canada. The Canadian score of the publicly-owned firms is statistically higher than that of the privately-owned firms, family-owned firms, and the Canadian average.

Regulations matter

The United States significantly leads the world in people management. A look at the correlation between the people management score and the World Bank's Rigidity of Employment Index (REI) sheds some light on the results (*Exhibit 17*). The REI is a component of the World Bank's ranking of countries on the ease of doing business. It ranks countries on the difficulty of hiring and firing employees and of scheduling non-standard work hours and annual paid leave. There is a correlation between a higher REI and a lower management score. Flexible labour markets encourage competition among firms for attracting and retaining top talent, and therefore inherently demand better people management. The United States has the least rigid labour market, according to the World Bank, and also the highest people management score. According to Bloom, this higher score in people management contributes strongly to the overall top position of US firms. With the second lowest labour market rigidity score, Canada closely follows its neighbour. We rank well against the world here, but still behind the United States.

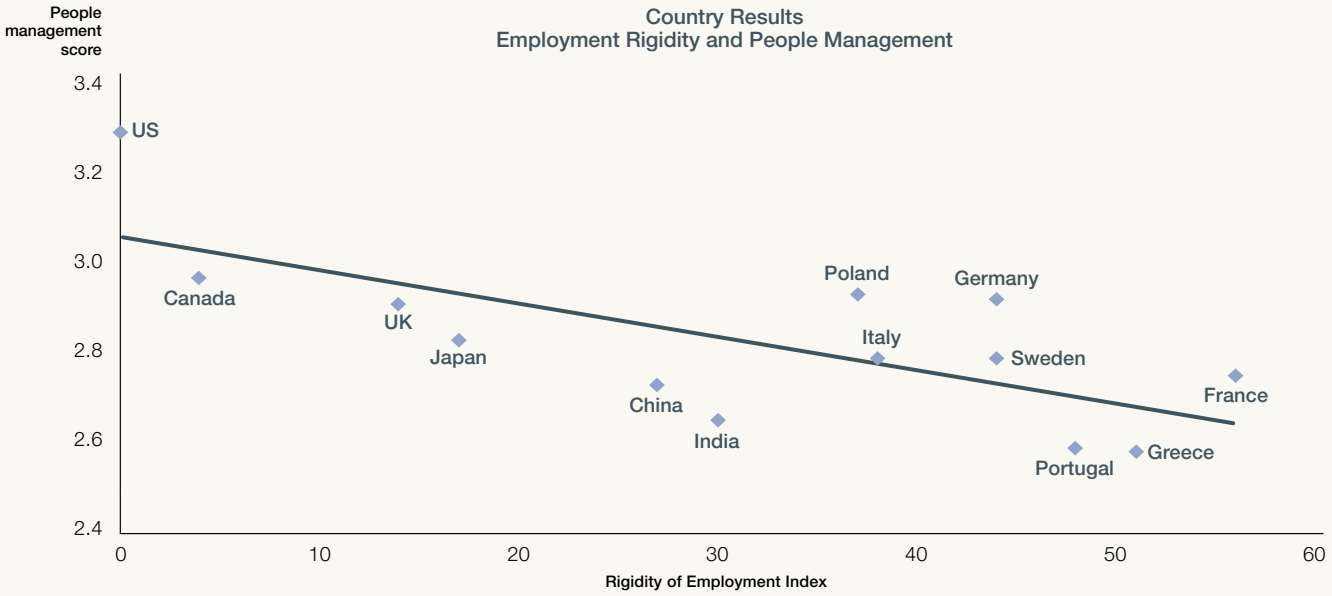
Exhibit 16 **Publicly-owned firms are significantly better managed than privately- or family-owned firms**



* Statistically ahead of privately- and family-owned firms at the 10% 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; Institute for Competitiveness & Prosperity analysis.

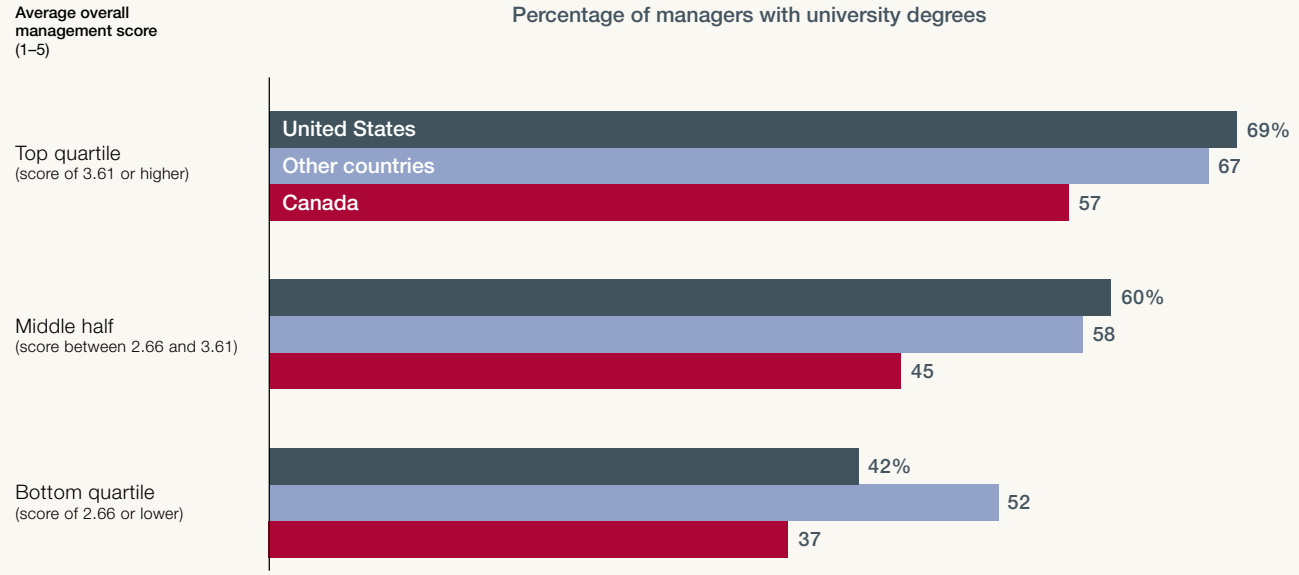
[24] *Ibid.*, p.50.

Exhibit 17 Lower Rigidity of Employment Index score is linked with a higher people management score



Note: R-squared: 0.50
Source: Rigidity of Employment Index, World Bank; Management Matters dataset, Institute for Competitiveness & Prosperity analysis; 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.

Exhibit 18 Better managed firms have more educated managers



Note: Quartiles are defined by Canadian data.
Source: Management Matters dataset, Institute for Competitiveness & Prosperity analysis; 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.

Education matters

When assessing the results across the set of firms worldwide, Bloom finds that firms with higher management scores tend to have a higher proportion of their workforce with at least a post secondary education. In Canada, these numbers are lower (*Exhibit 18*). Our managers are less well educated in comparison to those in the United States and the other eleven countries in the sample. These research results reinforce our earlier conclusion that higher education is linked to overall management practices in the firm.

In ranking the scores of each company in the Canadian research from lowest to highest, we have ninety companies in the bottom 25 percent of scores, or bottom quartile. Companies in this bottom quartile achieved an average score of 2.66 or less. Among these Canadian companies, only 37 percent of managers held university degrees. Among the companies in the second and third quartiles, or the middle half, the average overall management score ranged between 2.66 and 3.61. Their average proportion of managers holding degrees was 45 percent. Finally, in the top 25 percent of best managed Canadian companies, or top quartile, the average management score was above 3.61; across these companies, 57 percent of their managers completed post secondary education.

Global leaders matter

In previous work, we have identified Canada's 77 Global Leaders.[25] Of the 421 companies we interviewed in Canada, 23 are also on the Global Leaders list. The average score of these companies is an impressive 3.64, significantly higher than the performance of companies that are not global leaders. This result holds true across the three sub-indexes – operations, performance, and people management. Global Leaders in our sample are dramatically ahead of other multinationals and domestically focused companies in the quality of their management (*Exhibit 19*). This result reinforces our assertion that growing globally competitive companies and creating an environment in which they flourish is very important for our prosperity.[26]

Aspiring for global leadership can put a firm in a virtuous circle. To realize global success, the firm needs to strengthen its management talent. In turn, strong management helps to achieve global leadership. If we want more global leaders, we need stronger managers.

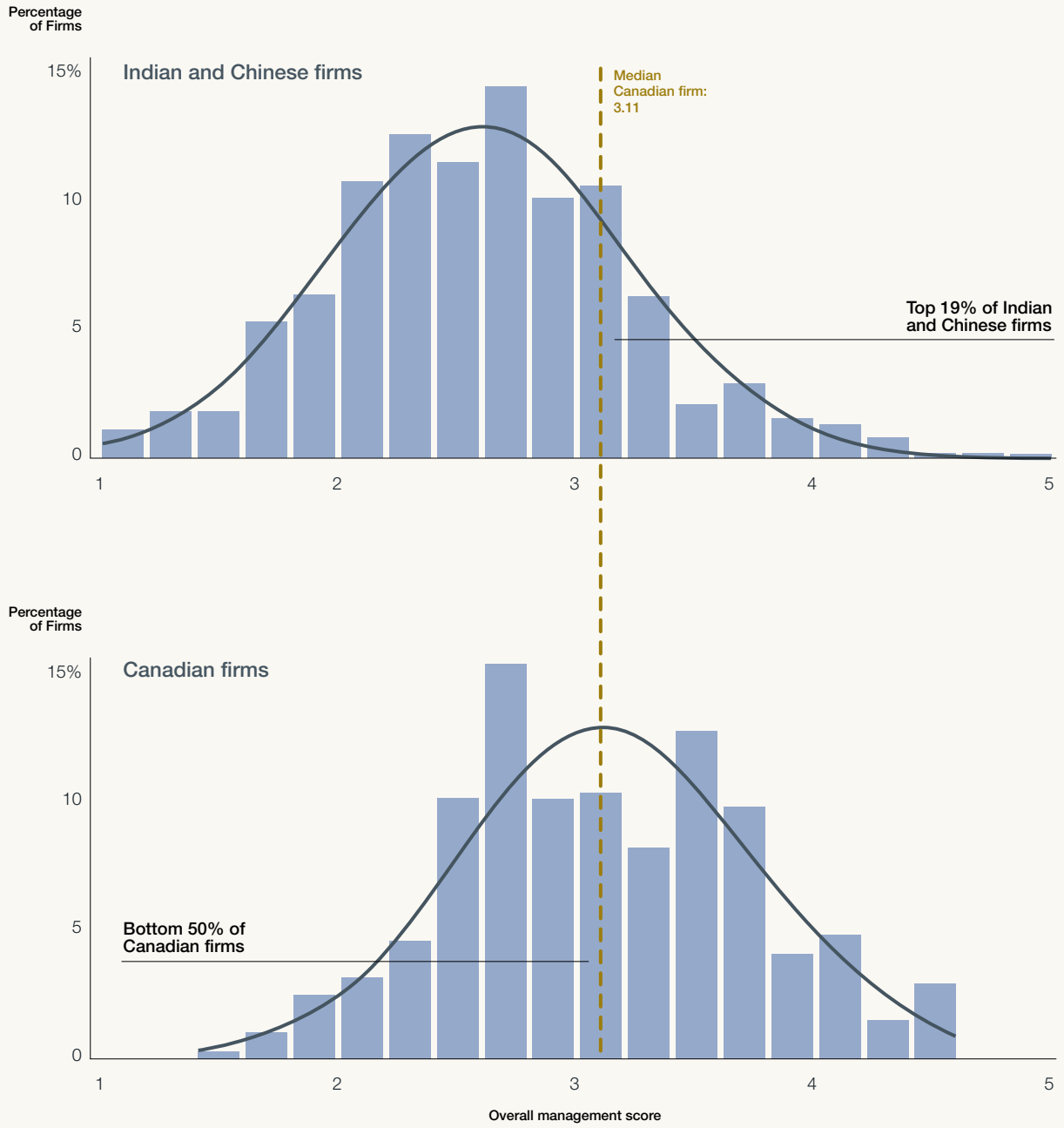
Exhibit 19 **Canada's global leaders are exceptionally well managed**

Management score	Canada's Global leaders	All other multi-nationals operating in Canada	Companies with Canadian-only operations
OVERALL SCORE	3.64	3.35	2.91
Operations	**3.91**	**3.68**	**3.13**
Performance	**3.54**	**3.20**	**2.73**
People	**3.37**	**3.08**	**2.83**

Source: Management Matters dataset, Institute for Competitiveness & Prosperity analysis.

[25] Task Force on Competitiveness, Productivity and Economic Progress, Annual Report 7, *Leaning into the wind*, November 2008, p.48.
[26] See, for example, Institute for Competitiveness & Prosperity, *Flourishing in the global competitiveness game*, September 2008.

Exhibit 20 The top 19% of Indian and Chinese firms are already better managed than the bottom 50% of Canadian firms



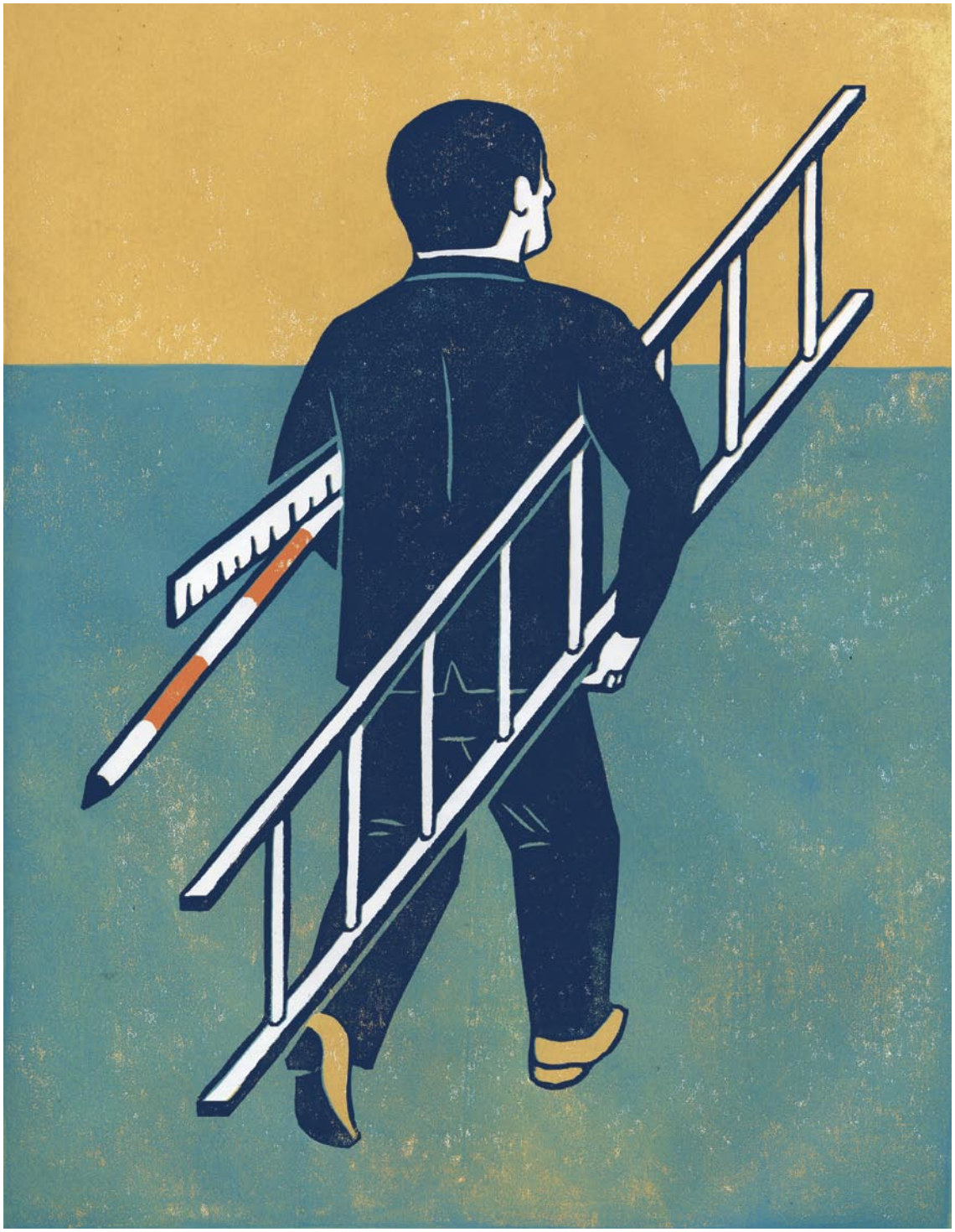
Source: Management Matters dataset; Institute for Competitiveness & Prosperity analysis. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*; November 2007.

Maintaining the management advantage for Canadian manufacturers is an important challenge

Much has been written about the emerging strength of Chinese and Indian firms, especially in manufacturing. Rotman School of Management Professor Daniel Trefler has concluded that the most significant challenge from these emerging economies will come when they reach a "tipping point" of customer sophistication. At that point, more and more value added activity will be occurring in these countries – a current competitive advantage for advanced economies.[27] Our management research points to another tipping point – when a significant percentage of operations in India and China are better managed than most Canadian operations. Research results indicate that currently, nearly 20 percent of Chinese and Indian manufacturers are better managed than the bottom half of Canadian firms (*Exhibit 20*).

Our research into management in Canada indicates that, at the plant level, our manufacturing managers are among the world's best. Our management teams are leaders in implementing specific techniques in the area of Lean Manufacturing. They are solid performers – but with room for improvement – in effecting good performance management. And, while we match management teams in other leading economies in people management, Canadian firms trail US practices significantly. Our results also indicate some of the key variables that drive – or at least are correlated with – better management. Taken together, the research results provide a solid foundation for determining improvement opportunities and areas of further research in the management of our manufacturers and hence our nation's productivity and prosperity.

[27] Daniel Trefler, "Canadian Policy Responses to Offshore Outsourcing" in *Offshore Outsourcing: Capitalizing on Lessons Learned*, edited by Daniel Trefler, forthcoming, Industry Canada e-book.



Ontario leads Canadian regions but trails US peers

WITHIN CANADA, on average Ontario's manufacturing firms are better managed than their counterparts in the rest of Canada (*Exhibit 21*).

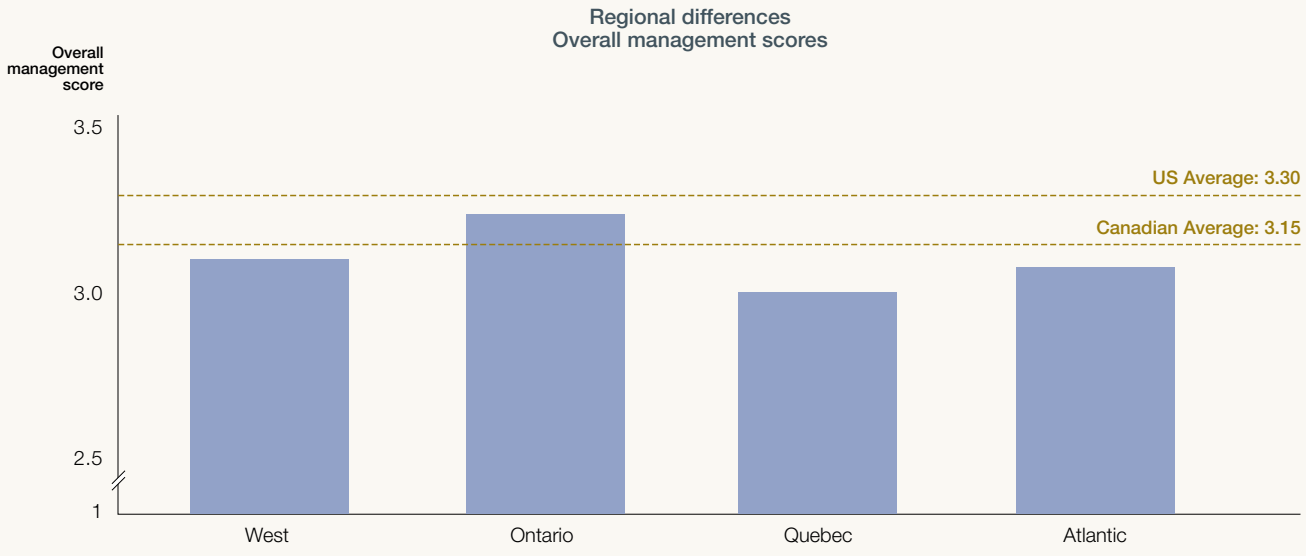
As shown in Exhibit 8, some industries tend to be better managed than others. Ontario has a higher percentage of these better managed industries. However, this accounts for less than 10 percent of the province's management score advantage.

Ontario trails most US peer jurisdictions in effective management practices

Much like Ontario's ranking in GDP per capita, our management practices score well by world standards but fall to average when compared to those in our North American peers. Ontario's overall management capability ranks eleventh of fourteen among the jurisdictions for which we have sufficient sample sizes.[28]

However, Ontario does not statistically significantly under perform seven of the ten states ahead of it. It does trail Indiana, Michigan, and Massachusetts significantly (*Exhibit 22*).

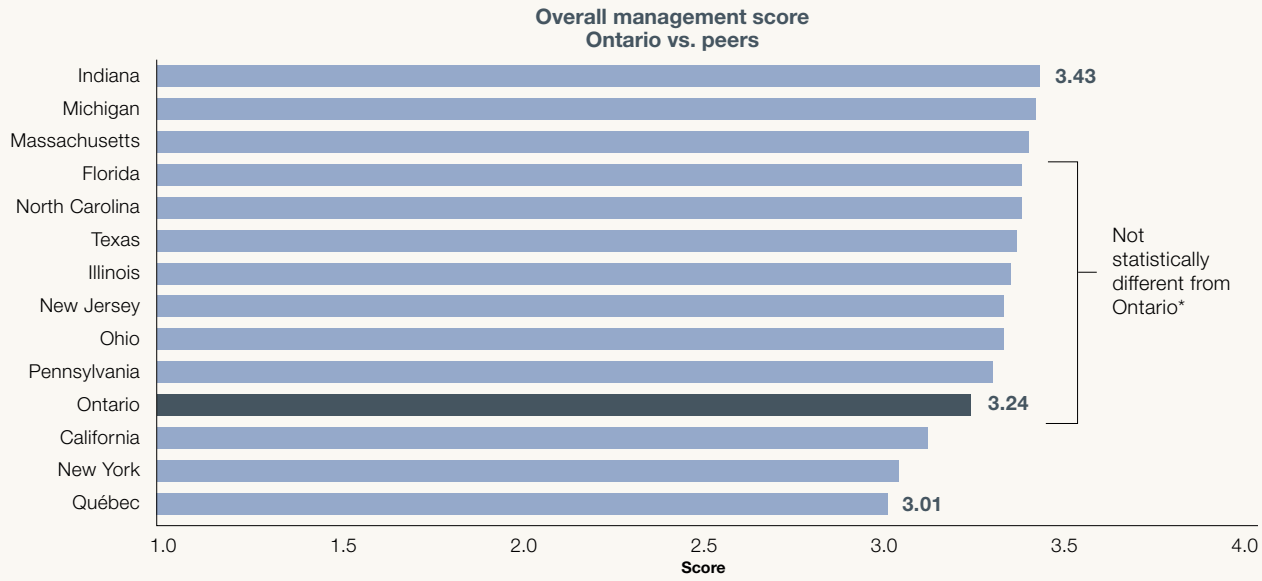
Exhibit 21 **On average Ontario manufacturers are better managed than their counterparts in the rest of Canada**



Note: Ontario is significantly different from the West and Quebéc at the 10% level, but not significantly different from the Atlantic provinces.
Ontario is significantly higher than Canada, but not significantly different than the US.

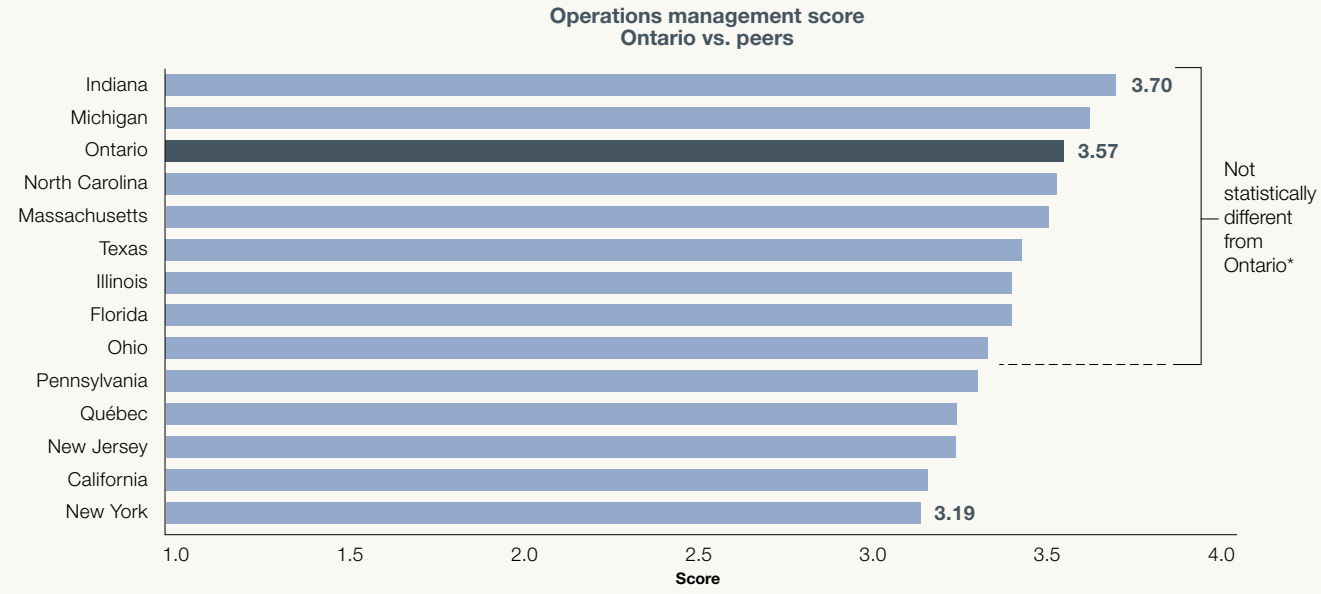
[28] Note that peer states Virginia and Georgia are not included due to small sample sizes. Sample sizes for the peer states range from 21 to 99.

Exhibit 22 Ontario under performs most of the peer states, but for many the differences are not statistically significant



* At the 10% significance level.
Source: Nick Bloom and John van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; Institute for Competitiveness & Prosperity analysis.

Exhibit 23 Ontario manufacturers have effective operations management practices



* At the 10% significance level.
Source: Nick Bloom and John van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; Institute for Competitiveness & Prosperity analysis.

Ontario's standing: Where can we improve?

Across the three elements of good management, Ontario does best in operations management approaches and less well in performance management and people management.

Operations management: Implementing "Lean Manufacturing" processes

In operations management, Ontario ranks third among its peers, but is not statistically different from Indiana or Michigan (*Exhibit 23*). There are, however, three areas where Ontario can still improve (*Exhibit 24*).

Exhibit 24 **Ontario matches best performers in majority of operations management questions**

Operations management	Ontario statistically worse than best performer	Ontario statistically no different than best performer	Ontario's ranking out of 14 peers
OVERALL SCORE		✓	3
Adoption of Lean Manufacturing ***Best practice:*** All major aspects of Lean have been implemented ***Worst practice:*** Other than just-in-time, no other aspects of Lean have been introduced		✓	5
Rationale for the adoption ***Best practice:*** Lean was introduced to meet business objectives ***Worst practice:*** Lean was introduced to catch up to competitors		✓	1
Process problem documentation ***Best practice:*** Exposing problems is integral to individuals' responsibilities rather than ad hoc solutions ***Worst practice:*** No process improvements are made when problems occur		✓	4
Operations Performance tracking ***Best practice:*** Performance is continuously tracked and communicated to all staff using a range of visual tools ***Worst practice:*** Tracking is ad hoc, and measures being tracked do not indicate directly if overall business objectives are being met	✓		7
Operations Performance review ***Best practice:*** Performance is continuously reviewed, based on indicators tracked; follow-up ensures continuous improvement ***Worst practice:*** Performance is reviewed infrequently and only success or failure is noted	✓		6
Operations Performance dialogue ***Best practice:*** Regular performance conversations focus on addressing root causes. Purpose, agenda, and follow-up steps are clear to all. ***Worst practice:*** Relevant data are often not present at meetings or discussion is based on data that is not meaningful. Agenda and purpose are not clear.	✓		5
Consequence management ***Best practice:*** Failure to achieve agreed targets drives retraining or moving individuals around. ***Worst practice:*** Failure to achieve agreed targets does not carry any consequences		✓	8

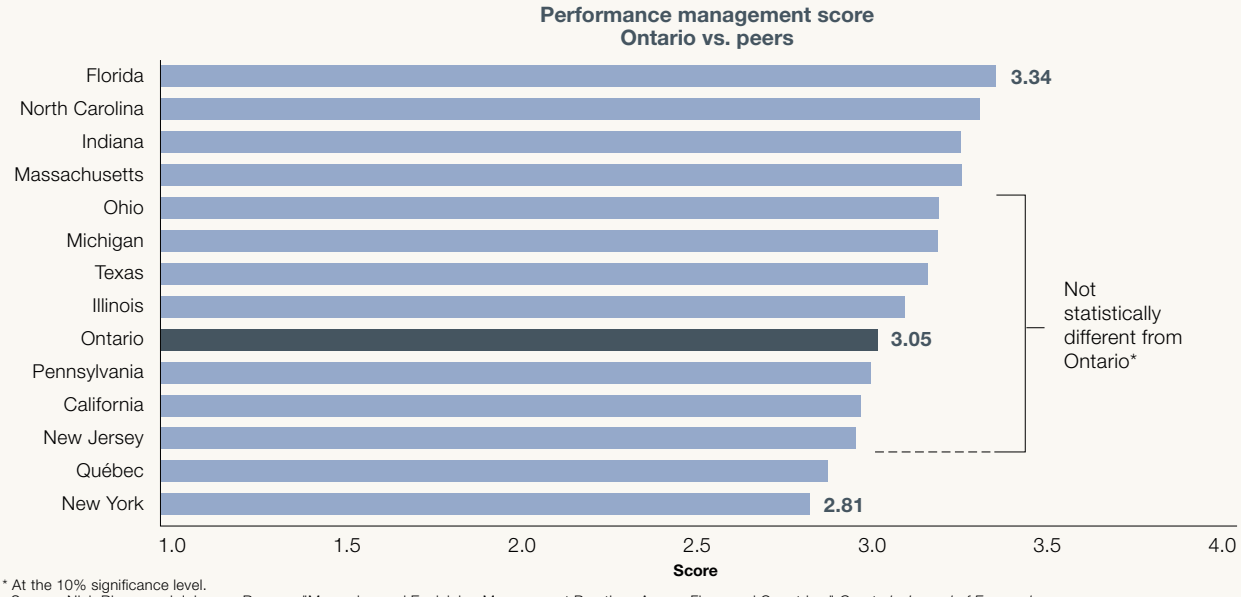
Source: Management Matters dataset, Institute for Competitiveness & Prosperity analysis. For further survey work, see Nick Bloom and John Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007.

Performance management: Setting and managing effective goals

In performance management, Ontario ranks ninth and is statistically significantly worse than the four leading states (*Exhibit 25*).

On each of the six elements of performance management, Ontario managers are worse than the best performers (*Exhibit 26*).

Exhibit 25 **Ontario manufacturers are less successful than their counterparts in several peers states in effective performance management**



* At the 10% significance level.
Source: Nick Bloom and John van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; Institute for Competitiveness & Prosperity analysis.

Exhibit 26 **Ontario has improvement opportunity in performance management**

Performance management	Ontario statistically worse than best performer	Ontario statistically no different than best performer	Ontario's ranking out of 14 peers
OVERALL SCORE	✓		9
Types of goals ***Best practice:*** Goals are a balance of financial and non-financial goals ***Worst practice:*** Goals are exclusively financial or operational	✓		12
Interconnection of goals ***Best practice:*** Corporate goals increase in specificity as they cascade through the business units ***Worst practice:*** Individual workers are not aware of how their contribution is linked to corporate goals	✓		8
Time horizon ***Best practice:*** Short-term goals are set so that they become a staircase to reach the long-term goals ***Worst practice:*** Top management's main focus is on short term goals	✓		8
Setting stretch goals ***Best practice:*** Goals are demanding for all divisions, and are grounded in solid economic rationale ***Worst practice:*** Goals are either too easy or impossible to achieve	✓		8
Clarity of goals ***Best practice:*** Performance measures are well defined and well communicated; worker performance is made public to induce competition ***Worst practice:*** Performance measures are complex and not clearly understood; worker performance is not made public	✓		8
Instilling a talent mindset ***Best practice:*** Senior managers are evaluated and held accountable on the strength of the talent pool they actively build ***Worst practice:*** Senior management do not communicate that attracting, retaining, and developing talent is a top priority	✓		7

Source: Management Matters dataset, Institute for Competitiveness & Prosperity analysis. 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.

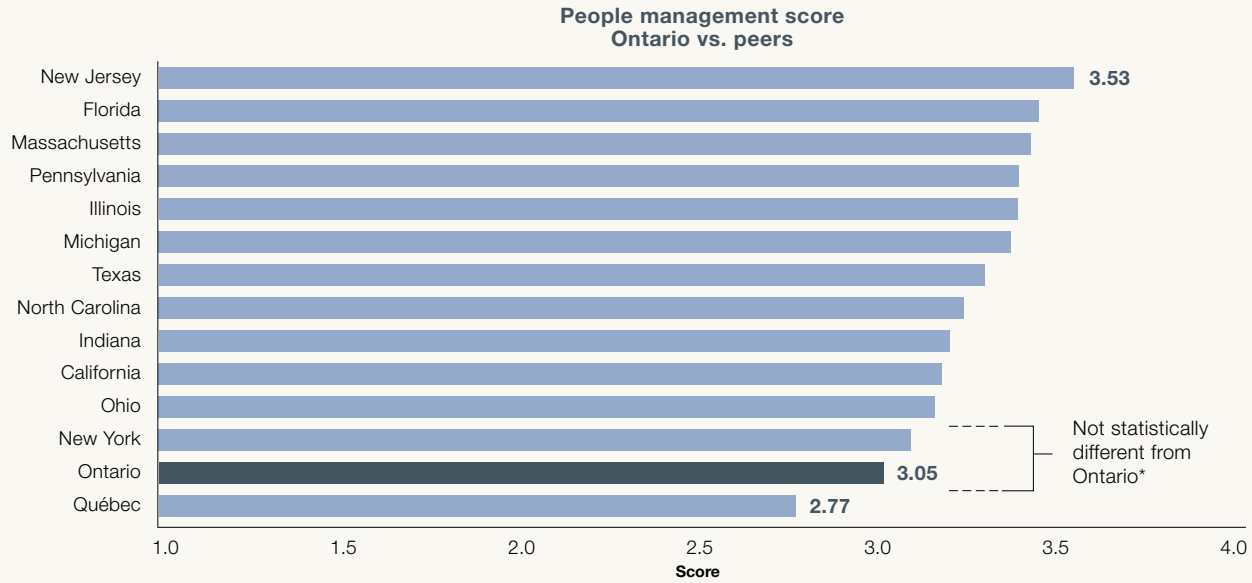
People management: Attracting and retaining top talent, addressing poor employee performance effectively

In managing people, Ontario is significantly behind nearly all its peer states. We are no different than New York and are only ahead of Québec (*Exhibit 27*). This result mirrors the Canadian score, where we are clearly leaders by world standards, but significant laggards when compared to the United States.

Similar to the Canadian results, it was only in the area of attracting high performers that we achieved statistical parity with the best manufacturers (*Exhibit 28*).

Our research indicates that manufacturing managers in Ontario and Canada are among the world's best. Nevertheless, there is room for improvement. A key part of the solution to our under performance in prosperity is in management talent. Efforts to improve management skills will pay dividends in innovation and productivity and ultimately our prosperity.

Exhibit 27 **Ontario manufacturers managers under perform their peer state counterparts in people management**



* At the 10% significance level.
Source: Nick Bloom and John van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, November 2007; Institute for Competitiveness & Prosperity analysis.

Exhibit 28 **Ontario significantly lags all US peers in most people management areas**

People Management	Ontario statistically worse than best performer	Ontario statistically no different than best performer	Ontario's ranking out of 14 peers
OVERALL SCORE	✓		13
Rewarding top performance ***Best practice:*** The firm provides ambitious stretch targets with clear performance related accountability and rewards ***Worst practice:*** People within the firm are rewarded equally irrespective of performance level	✓		**13**
Addressing poor performance ***Best practice:*** Poor performers are moved to less critical roles or out of the company as soon as weaknesses are identified ***Worst practice:*** Poor performers are rarely removed from their positions	✓		**13**
Promoting high performers ***Best practice:*** Top performers are actively identified, developed, and promoted ***Worst practice:*** People are promoted primarily upon the basis of tenure	✓		**13**
Attracting high performers ***Best practice:*** The firm provides a unique value proposition to encourage talented people to join the company instead of the competitors ***Worst practice:*** Competitors offer stronger reasons for talented people to join their companies		✓	**6**
Retaining high performers ***Best practice:*** Managers do whatever it takes to retain top talent ***Worst practice:*** Managers do little to try and keep the top talent	✓		**13**

Source: Management Matters dataset, Institute for Competitiveness & Prosperity analysis. 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.

Management matters

Our work on the importance and capabilities of management has implications for public policy and for our businesses.

Public policy needs to take greater account of management capabilities

Effective management is an important key to our prosperity. It is critical to achieving excellence in innovation and productivity, since good management drives the demand for innovation, leads to high quality supply of innovation, and ensures effective financing of innovation. Canada has invested significantly in establishing some of the building blocks for innovation. But, while these efforts are necessary, they are not sufficient. We need to enhance federal innovation policy with an adequate focus on strengthening our management capabilities. Government policy, provincially and federally, can enhance the quality of our management capabilities.

Broaden innovation policy to include management skills. As we have seen in our past research, our public innovation policy places too much emphasis on the hard sciences and does not recognize the importance of innovations in business and management processes. Our competitiveness and prosperity are built on a solid base of excellence in the sciences. And successful high technology firms are founded by science and engineering graduates. But successful innovation requires a balance of science and other skills. These other skills are important to achieve a successful transition from start-up to thriving businesses.

In **Ontario** we have seen innovation policy move in this direction. The Ontario Innovation Agenda released in April 2008 explicitly acknowledges that innovation is most effective when the process is customer or market driven. As well, it sees innovation as neither demand-pull nor supply-push, instead recognizing that it is an interactive and iterative process. This is a welcome development in the provincial government's approach to innovation. It does needs to go further in elevating the importance of management skills on their own account; currently it sees commerce skills as something that need to be developed and taught across sectors and disciplines. We look forward to the ongoing development of Ontario's innovation policy.

At the **federal** level, we see an orientation toward the hard sciences in the granting councils related to innovation. Research grants for business school academics represent an insignificant portion of funding overall and within the Social Sciences and Humanities Research Council (SSHRC). Scholarships bypass students in graduate business education programs almost entirely because the professions are not included within the mandate of the granting councils. In the most recent federal budget, there was an increase in the number of scholarships in business related disciplines, but they will bypass students in recognized graduate business schools and programs. The federal government should explore the impact of implicitly bypassing financial support of graduate business students on Canada's prosperity. On a positive note, the federal government has announced a two-year program to provide $30 million to help small and medium businesses hire over 1,000 new post secondary graduates, including graduates from business schools, "to implement more effective business processes and strategies, and develop new innovative products and services that companies can bring to the marketplace."

Both the federal and provincial governments need to strengthen their **commitment to business education**. We have a significant gap versus our US counterparts in business degree holders – and this gap is the result of fewer spaces in our schools, not the lack of demand by students. More alarming is the lower educational attainment of those in management occupations, irrespective of field of study. Just over a third of our managers have a university degree, compared to more than half in the United States. If we believe that education is important to human capital and prosperity, this situation seems competitively dangerous.

Embrace international competition in our economic policy. Our research provides more evidence on the beneficial impact of international competition. Multinational firms are better managed and, as we have seen in our previous research, they invest more in R&D and pay higher wages. Canada's global leaders are exceptionally well managed, according to our research. In these times of economic turmoil, governments must resist the siren song of protectionism.

Our businesses must aspire to excellence in management

Strong management is critical to greater innovation success and higher productivity. Our research and the research by our international colleagues indicate that productivity performance at the manufacturing firm and industry levels is affected by strong management. It is not a stretch to draw a similar conclusion for other sectors of the economy. Our business leaders have to strive for better educated and trained managers and for ongoing pressure and support for the adoption of the most advanced and sophisticated management techniques.

Better people management is a significant improvement opportunity for our businesses. Our research indicates that the largest gap in our management performance is in human resources. More specifically, our businesses need to improve their abilities to retain high performers and to deal forthrightly with performance problems. Our managers have incorporated many of the best practices in management process – but they need to pay more attention to the human element.

Global leadership is driven by great management, and great management is achieved by global leaders. As we have concluded in past reports, the best weapon against hollowing out is for more of our businesses to strive for global leadership. Excellence in management is inextricably linked to global leadership – so, as we urge our business leaders to aspire to global leadership, we are, by necessity, urging them to strengthen their management capabilities.

We have a solid base of well managed companies in Ontario and Canada – in fact our manufacturers are among the best managed in the world. Yet, we can do better. By improving our public policy environment and by encouraging our business leaders to strive for stronger management, we can achieve greater innovation to create globally competitive businesses – and realize our prosperity potential.

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To learn more about the Institute and the Task Force please visit us at: www.competeprosper.ca

Should you have any questions or comments, you may reach us through the web site or at the following address:

The Institute for Competitiveness & Prosperity
180 Bloor Street West, Suite 1100
Toronto, Ontario M5S 2V6
Telephone 416.920.1921
Fax 416.920.1922

Executive Director

James Milway
416 920 1921 x222
j.milway@competeprosper.ca

Researchers

Tamer Azer
416 920 1921 x228
t.azer@competepropser.ca

Katherine Chan
416 920 1921 x231
k.chan@competeprosper.ca

Anam Kidwai
416 920 1921 x238
a.kidwai@competeprosper.ca

Aaron Meyer
416 920 1921 x225
a.meyer@competeprosper.ca

Sana Nisar
416 920 1921 x223
s.nisar@competeprosper.ca

Adrienne Ross
416 920 1921 x230
a.ross@competeprosper.ca

Daniela D. Scur
416 920 1921 x224
d.scur@competeprosper.ca

Ying (Sunny) Sun
416 920 1921 x227
s.sun@competepropser.ca

Summer Analysts

Jack Bolland
Sean Brandreth
Patrick Dydynski
Asama Sharef
Sébastien Vézina

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Illustration **Blair Kelly**

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