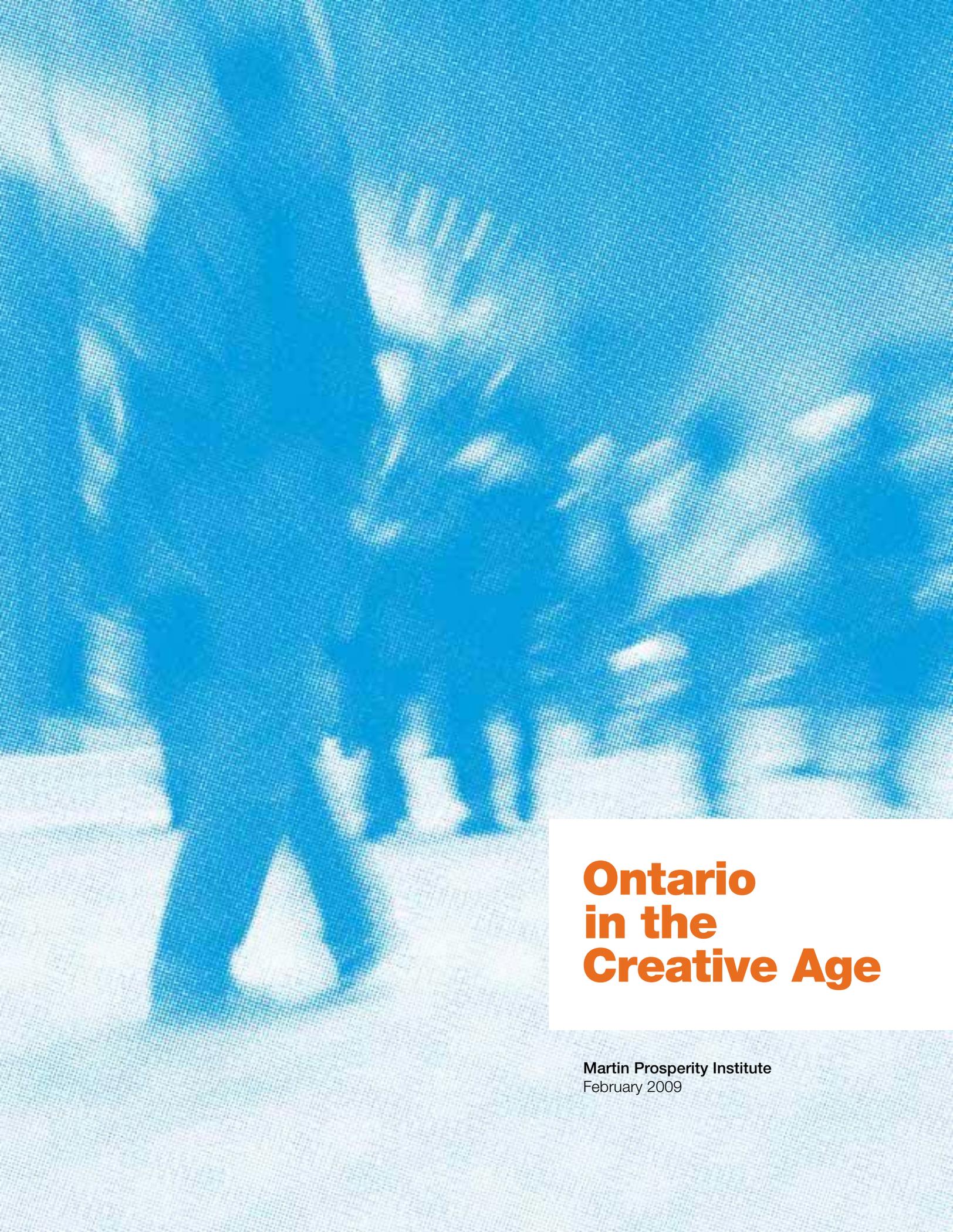


# Ontario in the Creative Age

MARTIN  
*Prosperity Institute*



**The Martin Prosperity Institute** at the University of Toronto's Rotman School of Management is the world's leading think-tank on the role of sub-national factors – location, place and city-regions – in global economic prosperity. We take an integrated view of prosperity, looking beyond economic measures to include the importance of quality of place and the development of people's creative potential.



# **Ontario in the Creative Age**

**Martin Prosperity Institute**  
February 2009

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## EXHIBITS

Exhibit 1	Ontario's distinctive advantage can be created through actions on four fronts	3
Exhibit 2	The share of creativity-oriented jobs is increasing	6
Exhibit 3	New jobs in the coming decade will be in creativity-oriented and routine-oriented service occupations	7
Exhibit 4	Nearly 80 percent of jobs in Canada are in services industries	9
Exhibit 5	Workers draw on three sets of skills	13
Exhibit 6	Earnings rise with increases in occupations' analytical and social intelligence skills but not with physical skills	14
Exhibit 7	Ontario under values increases in analytical and social intelligence skills	15
Exhibit 8	Clustered industries draw more on creativity-oriented occupations	17
Exhibit 9	Creative clusters generate higher earnings	17
Exhibit 10	Wage differences between the occupational groups and industry groups are much less prevalent in Ontario than in peer states	18
Exhibit 11	Ontario has less creative content than US peers in 36 of 41 clustered industries	19
Exhibit 12	Ontario out performs US peers on tolerance, but under performs on talent and technology	20
Exhibit 13	Routine-oriented occupations have higher unemployment rates and were even harder hit by the recession in the early 1990s	23
Exhibit 14	Returns to investment in early childhood development are higher than for those in later life stages	25
Exhibit 15	Workers in creativity-oriented occupations are concentrated in a small number of Ontario city regions	27

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## CONTENTS

<b>Foreword and acknowledgements</b>	iv
<b>Ontario's opportunities in the creative age</b>	<b>1</b>
<b>The promise and the challenge of the creative age</b>	<b>4</b>
The unfulfilled promise of the creative age	5
Transformation of the jobs we do	7
Transformation of what our industries produce	8
<b>Realizing the promise of the creative age</b>	<b>10</b>
Unleashing our full potential	12
Capturing Ontario's diversity advantage	20
Opening creative opportunities for all	22
Building geographic advantage	26
<b>Agenda for Ontario's creative age</b>	<b>30</b>
Harness the creative potential of Ontarians	31
Broaden our talent base	33
Establish new social safety nets	34
Build province-wide geographic advantage	34
<b>Working Paper Series</b>	<b>36</b>
<b>Contact us</b>	

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## FOREWORD AND ACKNOWLEDGEMENTS



We are pleased to present our report, *Ontario in the Creative Age*. In the 2008 Ontario Budget, Premier McGuinty asked us to “undertake a study of the changing composition of Ontario’s economy and workforce” and to “examine historical changes and projected future trends affecting Ontario.” Our task was to “provide recommendations to the Province on how to ensure Ontario’s economy and people remain globally competitive and prosperous.”

To do so, we launched a major new research and data collection effort at the Martin Prosperity Institute and the Institute for Competitiveness & Prosperity to develop new and comparable statistics on workforce trends and skills for Ontario, its major cities and towns, and other leading jurisdictions in North America. We also commissioned a wide range of studies from leading scholars and researchers in Ontario and abroad.

Our findings convince us that Ontario is well-positioned to compete and prosper in this ongoing global economic transformation. While the economic environment has worsened since this project was commissioned, the current upheaval only accentuates these trends – especially the shift from more routine-oriented to creativity-oriented jobs that place a premium on analytical and social intelligence skills.

Such change is inexorable. We cannot turn away from it; nor can we slow it. We face a critical inflection point. Ontario has tremendous advantages on which to build broad, sustainable prosperity. We have a highly skilled work force, world leading businesses and industries, excellent post secondary institutions, great cities and regions, and a culture that values openness, diversity, and social cohesion. But we can become stronger and more competitive.

We can build a shared prosperity for Ontarians by drawing more broadly on the creative skills of our people and workforce, developing stronger clustered industries, and harnessing the creative potential of current and future generations to become a model for generating prosperity in the creative age. To accomplish this, we advance four sets of recommendations.

We must harness the full creative potential of all Ontarians. To prosper in the global economy, we must create new jobs in high-value industries and occupations, and shift our employment from routine-oriented to creativity-oriented occupations, while boosting the creative content of all work in all our industries. We must encourage and reinforce the development of our clustered industries to compete more on the basis of distinctive advantage than on low cost or replication of what is done elsewhere.

We must broaden our talent base. Ontario needs to raise its talent attainment – the percentage of our work force that has post secondary education. We propose that Ontario aspire to be known throughout the world as the education province.

We must establish social safety nets for the creative age. We are a diverse and open minded province with a tremendous record of social cohesion. We need to aim for a social safety net that encourages and assists Ontarians to develop and achieve their full creative potential.

We must build a province-wide geographic advantage. We must connect and position our cities, towns, and communities to prosper. We have a strong economic core in Ontario – a mega-region running from Waterloo and Niagara through Toronto and to Ottawa. We need to link our older, industrial communities and the areas located far from the mega-region to this core so we can move goods, people, and ideas across and through our province and beyond with the speed and velocity required to compete globally.

This report is an important part of our work on this project – but it is by no means the final step in this process. For us, it is an opening of a dialogue with Ontarians on how we can thrive in the transformation to an economy based on people’s creativity and knowledge from one based on physical resources and hours of toil. We hope to continue this dialogue through the release of our more detailed research findings and commissioned reports and through face-to-face meetings with Ontarians.

We gratefully acknowledge the funding support for our work through the Ontario Ministry of Economic Development. We are also grateful for the many hours of thought and encouragement given to us by Minister Michael Bryant and his staff at the Ministry as well as by staff in other Ministries.

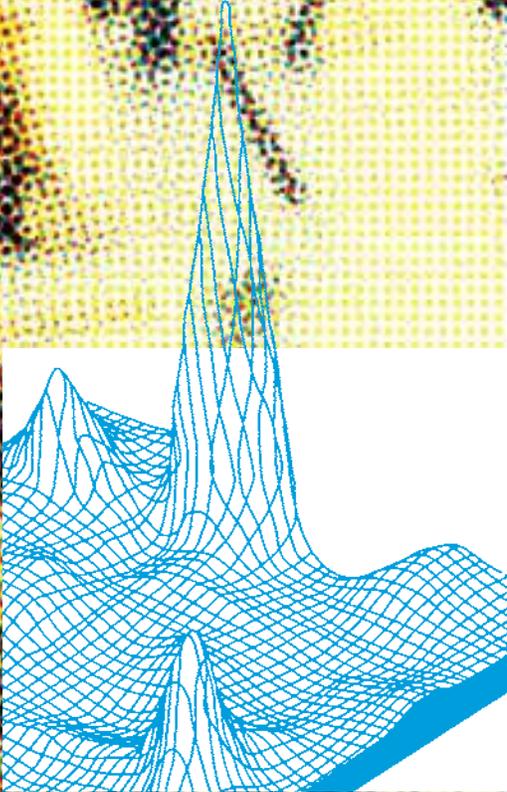
We appreciate the opportunity to assist in this important process and look forward to discussing our findings and recommendations with Ontarians.



Roger L. Martin, Dean  
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## ONTARIO'S OPPORTUNITIES IN THE CREATIVE AGE

Ontario is in the midst of a global economic transformation. While this transformation to a knowledge- or idea-driven creative economy has been underway for more than three decades, the current financial and economic maelstrom has accentuated its importance.

The combination of this transformation and the current economic uncertainty is leading to struggles and difficulties for many Ontarians. But it also opens great opportunities for our province. In crises like these, nations, regions, provinces, and states can rapidly change ground; they can improve or lose position, depending on the actions they take. Now is the time for Ontarians to take bold actions to ensure our future prosperity.

As in all times of economic crisis, there is considerable pressure on governments to protect the past and to undertake bailouts – to preserve what we have during this time of uncertainty. But this protective approach can only forestall the inevitable. There is a better way. That way is to invest in our people, our businesses, our institutions, and our infrastructure. Productive and future-oriented investment will generate prosperity for the long term.

There is no greater resource than the creativity, innovativeness, and productive talents of our people. Our goal must be to harness and use our full creative talents, to grow the businesses and industries of the

future, to use our openness, tolerance, and diversity to gain economic advantage, and to invest in the infrastructure of the future in ways that enable more innovation and economic growth. Ontario can and must take a high-road strategy for economic prosperity in which all Ontarians can participate. We owe it to ourselves and future generations to build a vibrant economy for the creative age.

The current economic transformation is as big and as challenging as the transformation from agriculture to industry. Our economy is shifting away from jobs based largely on physical skills or repetitive tasks to ones that require analytical skills and judgment. This shift is also evident in the long-term trend away from employment in goods-producing to service industries, from occupations that depended on physical work to produce goods to ones that provide service and rely on creativity. The change is inexorable. We cannot turn away from it; nor can we slow it. The clock of history is always ticking. Competitive advantage and prosperity will go to those jurisdictions that can best prepare themselves and adapt to this long-run trend. We must embrace it and act in ways that create a distinctive advantage for the province and ensure our long-term prosperity.

In doing so, we must recognize that our current economic transformation – like others before it – not only generates considerable future opportunity, but also considerable inequality. Certain industries have expanded and certain occupations have seen their wages grow considerably, while others have languished, stagnated, or declined. Greater returns have gone to innovative industries, to more highly educated people, to those in creative occupations, and to urban areas.

Our world is becoming increasingly spiky, with peaks that help to drive economic growth and valleys that are languishing. Our aim is not to lop off the peaks, but to raise the valleys. Our forebears did that in the industrial age by ensuring that manufacturing work was productive, well-paid, safe, and secure and by developing an infrastructure that helped grow industries and brought everything from better transportation to better housing. We can do it again in this economic transformation, by developing a distinctive advantage in highly innovative creative industries, by bolstering the productivity of our competitive manufacturing industries, by transforming and improving productivity and wages in our growing service industries, by establishing a new social safety net system, and by developing a twenty-first century infrastructure that strengthens our urban centres and mega-regions while connecting older industrial centres and rural areas – giving us the scale and speed to compete globally.

Such a holistic approach to achieving sustainable prosperity shared broadly by Ontarians will mean higher wages, lower unemployment, greater resilience from economic shocks, and increased global leadership. It will enable Ontario to lead the

current economic transformation and become a model for how jurisdictions can compete, thrive, and prosper in these times.

This must be more than a government effort. While governments can spearhead and mentor change, the transformation we are living through will require the collective action of all Ontarians. Indeed, the prosperity of a jurisdiction is the result of collective choices made by all of its economic actors over time. For governments, this means making the right investments – ones that provide general and specialized support for the foundation of creativity and innovation. Businesses need to develop and invest in strategies that build on a jurisdiction’s advantages and to invest in strengthening those advantages through training, capital investments, and other strategic initiatives. Businesses should make these choices for their own benefit, not in response to government directives. For individuals, it means investing in their own capabilities and skills. It also means investing their time and money in local businesses and in local arts, cultural, and charitable organizations.

Ontario has tremendous advantages to build on. We have a prosperous, socially cohesive society with globally competitive businesses and skilled workers. But we can do better – and we must. The evidence shows we rank well behind a set of peer regions in North America and slightly behind the best global peers in economic output per person – perhaps the single best measure of our overall economic prosperity. And in recent decades, we have seen our advantage erode from near parity with these global leaders.

Ontario is relatively prosperous; but our assessment is that we have settled for a level of prosperity that sells our province short. While it is not comforting to admit, we have in fact lost ground against the very best economies over the past twenty years – a period which has seen all three political parties in government. Although we house many world class industries, not enough of our businesses and industries compete on the basis of the unique and superior goods and services that are required to ensure lasting global competitiveness. And our economy does not place the same kind of premium on the core creative skills that drive economic growth as do our peers. As a result, our citizens’ creative skills are less developed than those of the world’s leading jurisdictions.

This creates a self-reinforcing downward cycle. When businesses fail to compete on unique, world-beating strategies, they lack the resources to invest in and reward the best creative skills in their workers. Workers in turn fail to develop their creative capabilities to the highest level through advanced education and training. The end result is lower levels of technological innovation and lagging competitiveness globally. All of this dampens our prosperity and hampers us in global competition.

This cycle follows through in our public spending patterns, where governments under invest in post secondary education

and make it unduly costly through tax policies for businesses to invest in machinery, equipment, and technology. The resulting danger is that the policy focus would shift toward hanging on to what has worked in the past and avoiding the new realities – thereby missing out on the new opportunities.

We can do better. We must seize the opportunity to retune the Ontario economy to higher and better performance levels. We need to aspire to remake Ontario so it will thrive in the emerging creative economy and be truly exemplary in global terms.

To achieve this advantage for shared prosperity, we recommend four sets of actions for Ontario over the coming two decades (**Exhibit 1**).

### **Harness the creative potential of Ontarians**

Ontario operates in the creative age from a position of strength. We have a solid base of important creative skills and industries that compete on the basis of their distinctiveness. Yet we are not realizing the full creative potential of our people and industries. Ontario needs to deepen our skills, with a focus on analytical and social intelligence skills. We need to challenge our workers and our businesses to compete more on the basis of creativity and distinctiveness. We need to draw in the immense capabilities of our immigrants to our province’s future success.

### **Broaden our talent base**

Ontario needs to raise its talent attainment – the percentage of our work force that has post secondary education. We must aspire to be the education province – known readily throughout the world as the jurisdiction with a highly educated population and world renowned centres of learning and research.

### **Establish new social safety nets**

The rise of the creative age is a double-edged sword. It generates tremendous wealth creation opportunities for some. Yet it can leave many behind, especially those in jobs that are disproportionately routinized, and those who do not have the skills and opportunities to participate fully in the creative economy. Ontario is a



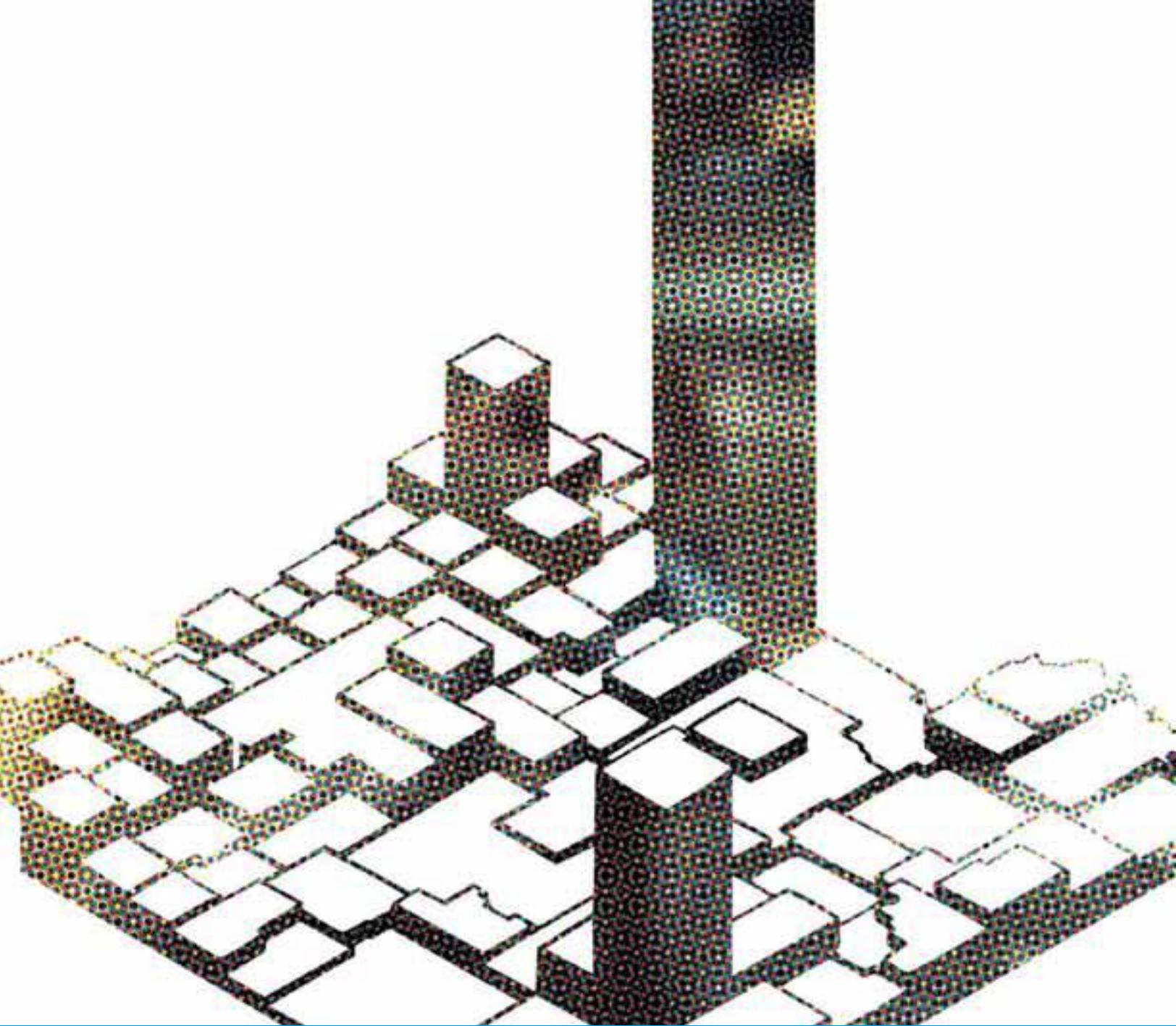
diverse and open place. It out performs its peers on measures of diversity and tolerance, but this advantage is not translating into economic success. We need to design a social safety net system for the creative age – one that partners with those who have the determination to participate fully in the creative economy. Not to do so is a terrible waste of human potential.

**Build province-wide geographic advantage**

Ontario is a big province that built its prosperity on many inherent geographical advantages. We have rich natural resource areas and a thriving economic corridor. We have prosperous cities, and the non-metro parts of Ontario are more prosperous than their counterparts elsewhere. Our future advantage in the creative age will be based on facilitating and encouraging the geographic clustering and concentration of industries and skills. The increasing spikiness of economic development puts a premium on density within our urban

centres and on the velocity of connections across a mega-region and with outlying areas. Ontario's challenge is to build the infrastructure that gains us the scale and the connectivity to ensure all regions of the province can achieve prosperity.

**Ontarians have built a prosperous economy and achieved a high level of social cohesion and diversity. These strengths create the possibility for emerging stronger from the current downturn and accelerating the longer term economic transformation. This will require us to build a creative economy that is more technologically advanced, inclusive, and sustainable. We are excited about the challenges facing us all, and we see this report as a first step in an ongoing dialogue and process for achieving this distinctive advantage for Ontario.**



# The promise and the challenge of the creative age

The change we are living through is dramatic. It is as sweeping as the historic shift from agriculture to industry that established the modern economy. We are now experiencing a transformation from the industrial age to the creative age, leading us into uncharted territory that is full of opportunity.

## THE UNFULFILLED PROMISE OF THE CREATIVE AGE

We live in a time of great promise. We have evolved economic and social systems that are tapping human creativity as never before. This in turn creates an unparalleled opportunity to raise our living standards, build a more humane and sustainable economy, and make our lives more complete.

Human creativity is the ultimate economic resource. The ability to generate new ideas and better ways of doing things is ultimately what drives innovation to raise productivity and thus living standards.

The great transition from the agricultural to the industrial age was based upon natural resources and physical labour power, and ultimately gave rise to giant factory-based economies. The transformation now in progress is potentially bigger and more powerful. The shift we are seeing now is based fundamentally on human intelligence, knowledge, and collaborative skills.

The transformation involves moving from routine-oriented jobs to creativity-oriented jobs – the two foundational types of occupations in our economy. Creativity-oriented occupations require workers to apply thinking skills and knowledge to changing situations and to make decisions on how best to proceed. These occu-

pations require the worker to operate a heuristic – an organized exploration of possibilities to reach a viable solution. An experienced lawyer, for example, will recognize the key problems in a case and apply experience to determine what tasks need to be done in what order for that specific case. But every lawyer’s case is different. Creativity-oriented jobs require knowledge and understanding in specific fields, but they also depend heavily on the ability of workers to recognize patterns, analyse alternatives, and decide the best way to proceed. Creativity-oriented jobs that depend upon the operation of a heuristic include scientists and technologists, artists and entertainers, and managers and analysts.

Routine-oriented jobs require workers to carry out tasks in a prescribed order or to do the same tasks repetitively according to a pre-ordained set of operating procedures. In essence, they run an algorithm – a specific set of procedures that will produce the desired result. The typical assembly line job as developed by Henry Ford exemplifies this. Workers are explicitly asked not to use their judgment or creativity. Some routine-oriented jobs have a large physical element to them. But the greatest proportion of routine-oriented jobs today are found in service occupations – waitresses who follow standard procedures in serving restaurant patrons, clerical staff who do likewise with paper work.

The proportion of people performing creativity-oriented work in occupations that are heuristically-driven has increased threefold over the past century and especially over the past two decades (**Exhibit 2**). But today every job calls for more creativity than in the past.

Still, no region or country has begun to tap into the full creative potential of all its people. Human creativity is a virtually limitless resource. Every one of us is creative in some way and has the potential to exercise our creativity. Creativity is also the great leveller. It cannot be handed down, and it cannot be owned in the traditional sense. We have no way of knowing who the next creative geniuses will be or where they will come from. Yet our society continues to encourage the creative talents of a minority; it neglects the creative capacities of many more.

The real challenge of the creative age is to build something more than a creative economy – a truly *creative society* that can harness the energy we have unleashed and mitigate the turmoil and disruption that it generates. That’s a very tall order. Adapting to the industrial age took many decades with lots of give and take and lots of experiments that didn’t work. Arguably, only after the Second World War did the advanced economies establish a broader industrial society able to support and harness the tremendous productive capacity of the great industrial engine that had emerged over earlier decades. And as we completed that “system,” we embarked on a golden age of rising productivity and living standards. The challenge before us today is even greater. And danger signs loom.

One is rising inequality. Those who earn their income from their creativity do much better economically than those who work in jobs based on rote tasks – either performing routine-physical labour or routine-service functions. Workers in occupations based on physical labour are declining as a percentage of the total work force and are much more likely to be unemployed, especially in an economic downturn. Workers in service occupations – retail clerks, restaurant and hotel staff – are much more numerous as a result of the rise of creative occupations. Those in the creativity-oriented occupations, working long days and nights, rely on those office cleaners, delivery people, and many others in the service economy. In fact, the service economy is the supporting infrastructure of the creative age.

We need to improve the wages and working conditions of those who work in the routine-oriented jobs that are the lifeblood of that infrastructure. Just as in the industrial age, we succeeded in improving working conditions in once hellish steel mills and auto assembly plants, we now need to ensure workers in routine-oriented jobs enjoy the benefits of the creative age. Certainly a lot of jobs – in the hair salon, on the construction site, or in the restaurant kitchen – already involve creative work. We need to recognize and reward that creativity more than we do. Some other jobs, too, can become more creative with higher rewards.

There is no magic bullet. But sooner or later some jurisdiction will determine how to tap more fully the creative talents of much

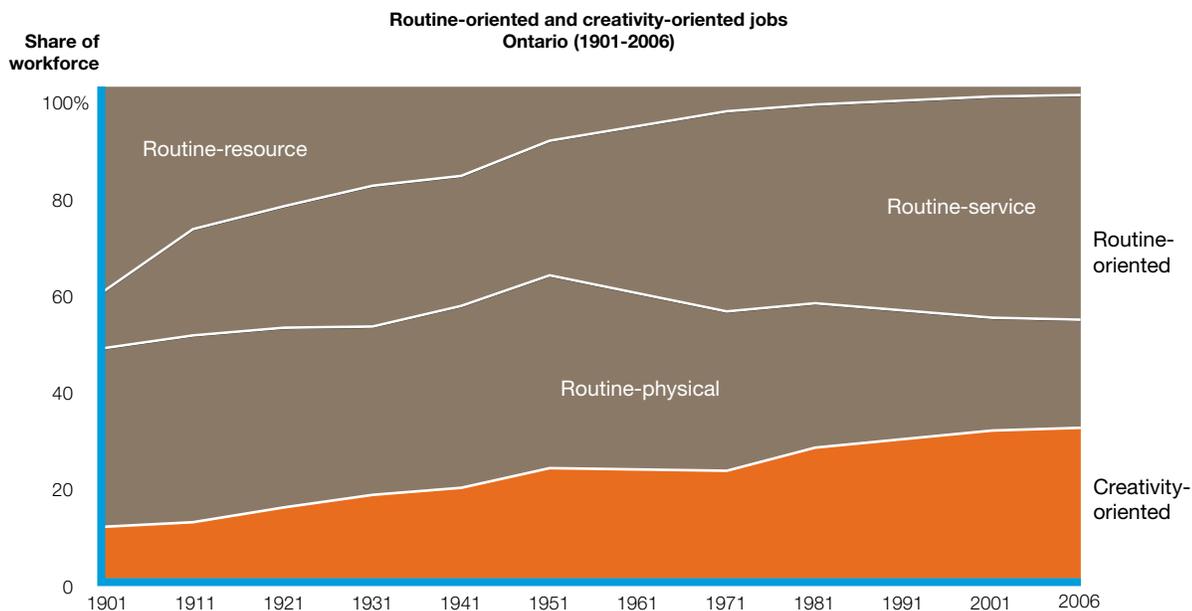
broader segments of its people – and it will gain a distinctive advantage. Japan’s auto manufacturers plumbed the knowledge and creativity of their shop-floor workers and gained a tremendous competitive advantage. Ontario’s own Four Seasons has done so in bringing guest service to new, world beating levels, thanks to empowered front-line employees. Employing the creative talents of people whose jobs presently ask for none will multiply this many times over. Relegating vast numbers of people to do work that is more rote and algorithmic than it needs to be is a dreadful waste of human capabilities.

Businesses in Ontario do not currently deploy creative workers to their best advantage. What’s more, our economy is currently “tuned” to under value increases in the creative content of all occupations.

We need a dramatic transformation in both our occupational structure – what people do – and in our industrial structure – what we produce.

The share of creativity-oriented jobs is increasing

Exhibit 2



Note: The 1961 and 1991 data points have been approximated due to data limitations.  
Source: Martin Prosperity Institute analysis based on data from Statistics Canada.

## TRANSFORMATION OF THE JOBS WE DO

The rise of the creative age presents us in Ontario with two great challenges:

- How do we guide the development of our economy so that we are moving increasingly to one that is characterized by creativity-oriented occupations?
- How do we design as much creativity into occupations that are currently routine-oriented?

Our economy has experienced the dramatic growth of some occupational classes, alongside the significant decline of others. Employment in creativity-oriented occupations is growing faster than average in Ontario. Over the past twenty-five years, the creativity-oriented occupations have increased from 26 percent of the province’s work force to 30 percent, while routine-oriented jobs have declined from 74 to 70 percent.

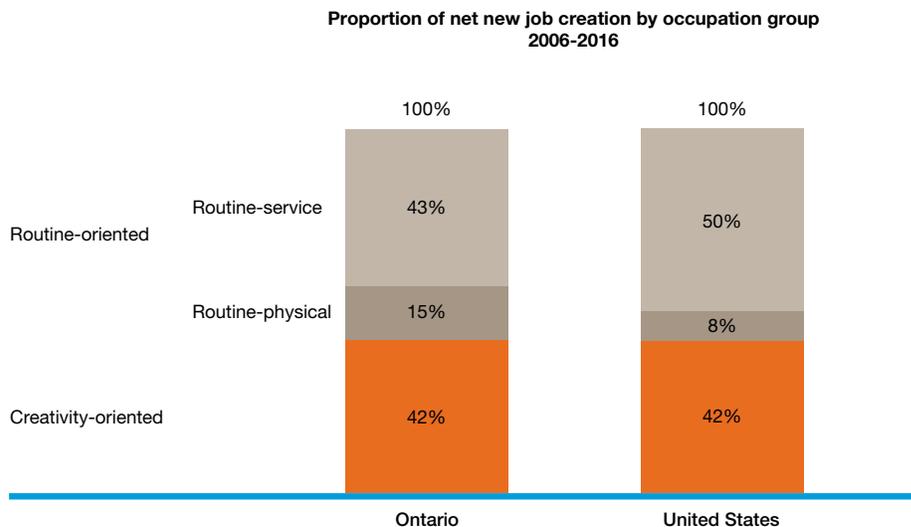
But within routine-oriented occupations, we have seen a massive shift. Routine-oriented physical jobs, like those in manufacturing, transportation, and construction, have fallen from 29 percent to 22 percent, while those in routine-oriented service jobs have grown from 41 percent to 46 percent.<sup>1</sup> Our projections show that creativity-oriented occupations and routine-oriented service occupations will continue to grow much faster than routine-physical occupations (**Exhibit 3**).

What we’re witnessing is a replay of the employment decline in farming, forestry, and fishing occupations in the first half of the twentieth century. Around 1900, fully 42 percent of Ontario workers were tilling the soil, cutting trees, or hunting and fishing for our food. Because of massive productivity improvements in the agricultural and resource sectors, today we are able to meet the basic consumption demands of Ontarians and untold numbers around the world with only 2 percent of our work force.

While it is imperative to increase our ability to compete for creativity-oriented jobs and industries, we must also improve the performance and pay – as well as the creative content – of those who work in routine-oriented occupations, particularly in the large and growing service economy. We must strive to be the world’s first jurisdiction to revolutionize routine work, to make it more creative and better paying and to have a modern high-paying, high-value added and secure service economy.

New jobs in the coming decade will be in creativity-oriented and routine-oriented service occupations

Exhibit 3



Source: Martin Prosperity Institute and Institute for Competitiveness & Prosperity analysis based on data from US Bureau of Labor Statistics, Occupational Employment Projections (2006-2016).

<sup>1</sup> Another type of routine occupation is resource-oriented (e.g., agriculture, mining, or forestry workers) where employment has declined from 4 percent to 2 percent of the workforce, over the past 25 years.

All of this poses hurdles for our educational system. It is important that Ontarians recognize the scale and scope of our educational challenge. In his 2005 report for the provincial government, *Ontario: A leader in learning*, former Premier Bob Rae stated “up to 70 percent of future jobs created in Canada will require some post secondary education.” This is in line with projections done for the US economy indicating that 67 percent of all jobs created between 2006 and 2016 will require some post secondary education.

We need to close a considerable gap. About 40 percent of 18-to-24 year olds participated in post secondary education in 2007. Factoring in those older native-born Ontarians and immigrants who have already completed their education, this participation rate will likely need to reach 60 percent to meet the educational requirements for future jobs. The most optimistic extrapolation of current momentum can be expected to take this ratio to a maximum of approximately 50 percent participation over the next twenty years. Hence, if we are to develop the knowledge and skills necessary for advantage in the creative age, we will need to step up our participation rates in post secondary education significantly.

## TRANSFORMATION OF WHAT OUR INDUSTRIES PRODUCE

Like the change from an agricultural to an early industrial economy in the mid-nineteenth century, our time is seeing the rise of a whole new economic system that is based more on brain than brawn, more on ideas than capital, more on human creativity than natural resources and brute strength. Just as the winning societies of that earlier time managed the transition from agriculture to industry and accelerated it, we too must accelerate our transformation to the creative age.

Since the Second World War, Canada has been transforming from what some describe as a goods economy to a services economy (**Exhibit 4**). We describe the transition as being from an industrial economy based on physical labour to a creative economy based on human creativity. While this transformation can be painful, it will ultimately benefit Ontario in two key ways. First, our economic growth will no longer be limited by physical resources and hours in a day, since creativity is potentially a limitless resource. Second, participation in the creative economy can grow beyond the third of occupations that are creativity-oriented. All workers can apply creativity to their jobs. Those jurisdictions that can help extend the creative economy to the production of goods, services, and resources will gain significant advantage. This transformation is the natural result of a maturing, prospering economy.

Goods manufacturing in Canada and Ontario has become ever more productive over time. Across the economy as a whole, our manufacturers have been able to produce more value added output without increasing the number of employees. In fact, between 1997 and 2007, real manufacturing value added achieved a growth of 1.0 percent annually, while the number of workers increased at a rate of 0.3 percent annually. This is the modern productivity miracle at work.

Since 1976, manufacturing employment has shown modest growth at 0.4 percent annually – although we are currently undergoing a significant shrinkage with the economic downturn. The economic development of China is part of the explanation for recent manufacturing employment reductions here in Canada – but only a small part. According to one researcher, the increase in China’s share of imports to Canada slowed our manufacturing employment growth by only 0.1 to 0.2 percent over the 1991-2004 period.<sup>2</sup> In fact, Ontario has been competing on the basis of high value added manufacturing for at least a generation, and so we are less affected by growth of lower value added manufactured goods in emerging economies.

The increasing sophistication of our services has contributed mightily to manufacturing productivity. Advances in software and communications services have improved forecasting accuracy for manufacturers and enabled the implementation of just-in-time production, which has reduced waste considerably. Industrial designers have increased efficiency through improved product and process design. New financial products and services have allowed manufacturers to make better use of working capital, thereby making their production more efficient. Advances in health care have reduced absenteeism in manufacturing – and in all industries.

The disaggregation of many industries, especially manufacturing, also contributes to the apparent trend toward services in our economy. When a manufacturer outsources its information technology work to an IT services provider, official statistics record a

<sup>2</sup> Alberto Isgut, “Offshore outsourcing of goods and services: Are Canadian industries and workers benefiting or suffering?” presentation to Conference on Offshore Outsourcing: Capitalizing on Lessons Learned, October 2006.

decrease in jobs in the good-producing sector and an increase in the services sector – even though the same people may be doing the very same jobs as before the out sourcing. That is hardly what people think of as a decline in manufacturing jobs.

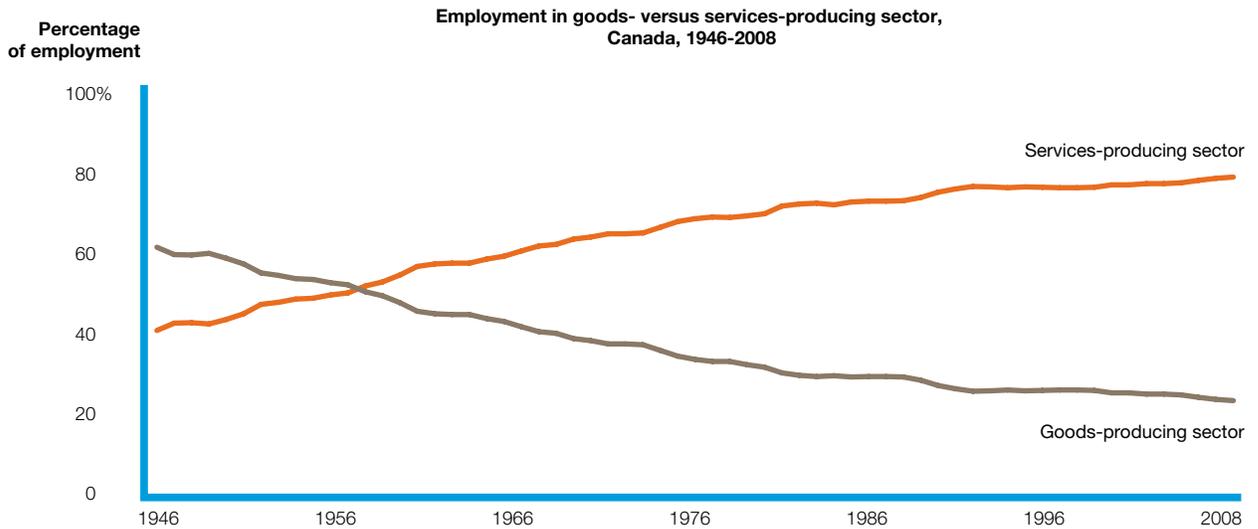
As Ontarians have been growing wealthier, we spend relatively less on basic needs. For example, India’s consumers allocate 46 percent of their US \$3,700 per capita income to food<sup>3</sup>; Ontarians, with a per capita income of \$36,300, spend only 8 percent on food.

There is only so much furniture, appliances, and automobiles that a family can purchase over a lifetime. But our demand for services – health care, education, financial advice, dining away from home to name a few – continues to grow unabated.

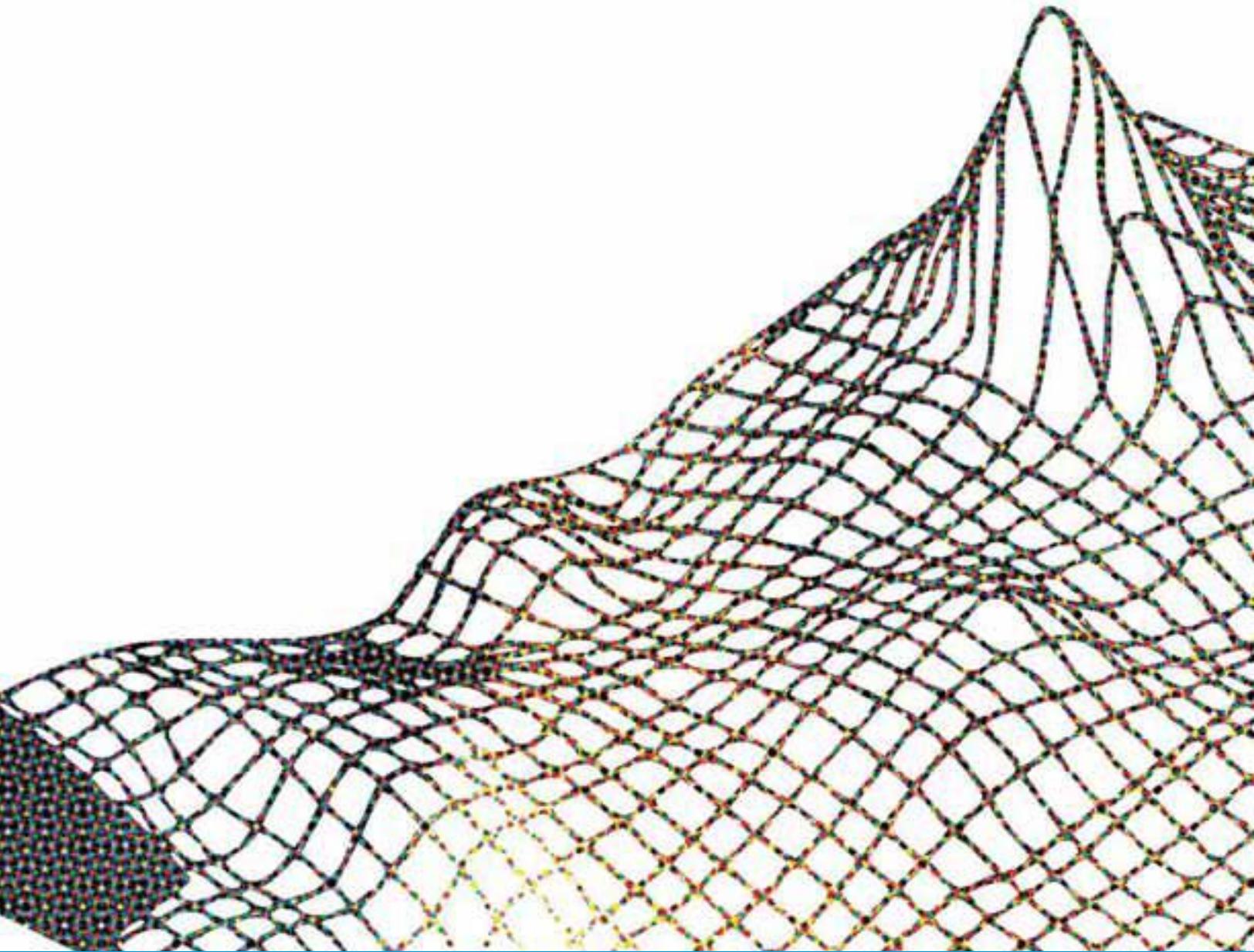
**Like other advanced economies, we are undergoing a significant economic transformation here in Ontario. The rise of the creative economy is to be welcomed. Our goal is to raise the creativity content in all our jobs and industries.**

Nearly 80 percent of jobs in Canada are in services industries

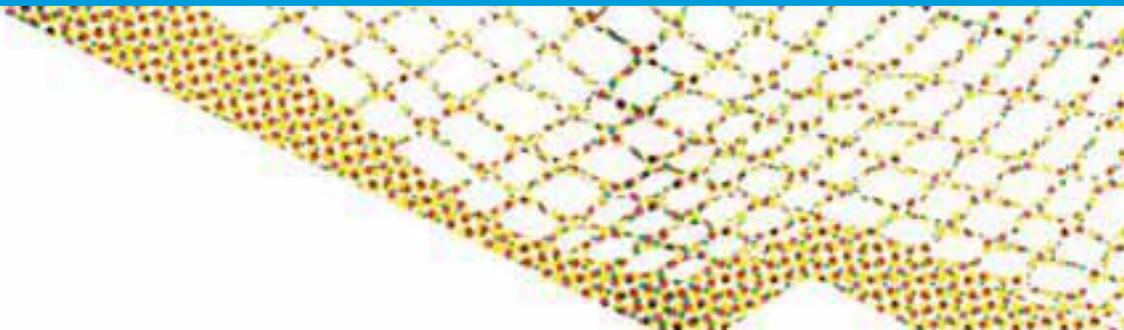
Exhibit 4

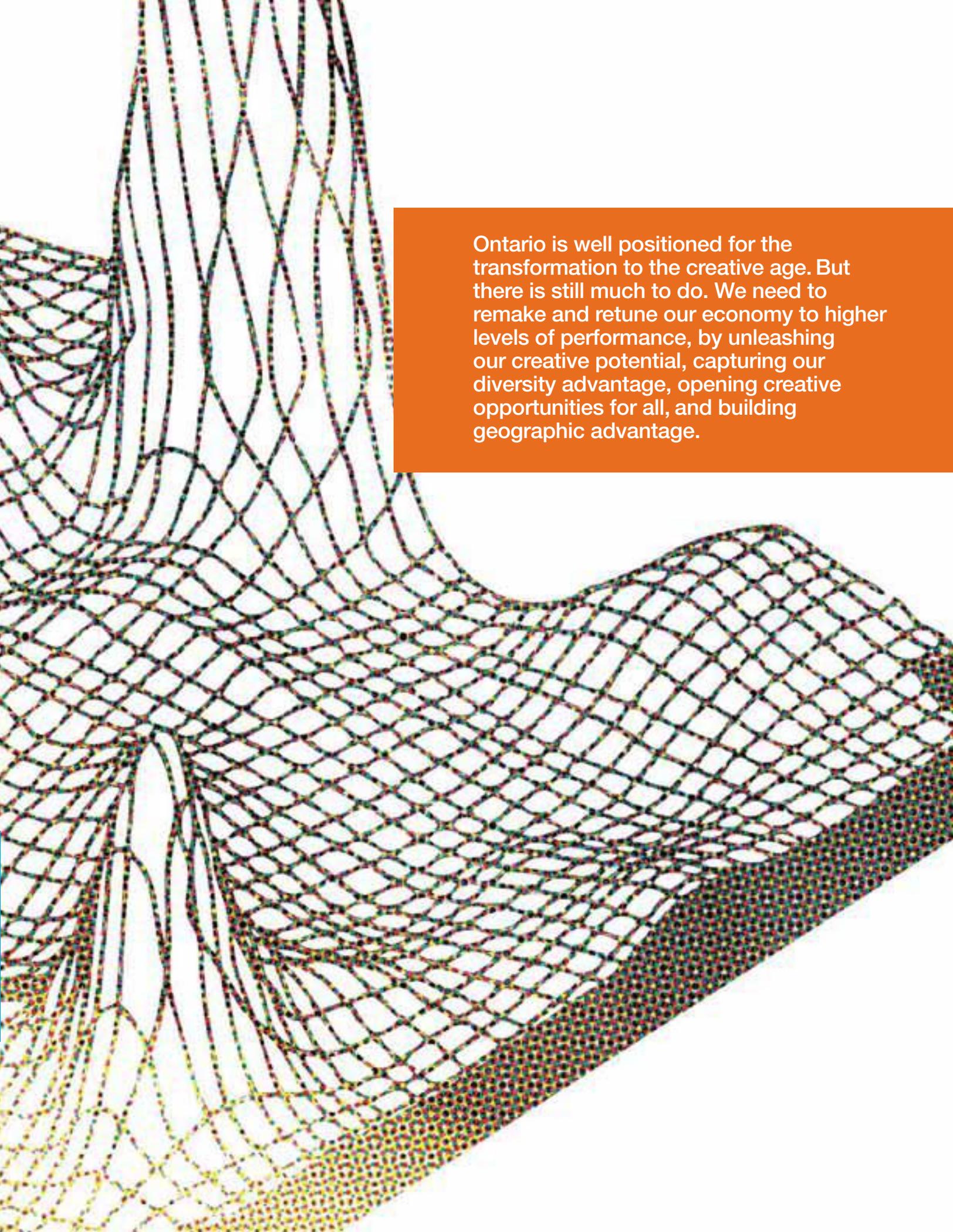


Source: Martin Prosperity Institute and Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada.



**Realizing the promise of  
the creative age**





Ontario is well positioned for the transformation to the creative age. But there is still much to do. We need to remake and retune our economy to higher levels of performance, by unleashing our creative potential, capturing our diversity advantage, opening creative opportunities for all, and building geographic advantage.

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## UNLEASHING OUR FULL POTENTIAL

The creative age gives rise to a whole new set of skills and requires our industries to enhance the creative content of our businesses. Ontario has great assets on which to build its advantage for the creative age, but we need to do more to realize the creative potential of these assets.

We have a simple challenge. If we want to compete and prosper in today's world, we must tap and harness the creativity of Ontarians. Our goal should be nothing less to be the jurisdiction with the widest coverage of the creative age across our people and industries. This means preparing our workers with the skills and capabilities required to thrive in the economy of the future. Sustained and shared prosperity demands nothing less.

### Raise the creativity content of occupations

Three broad sets of skills play a role in our economy. *Physical* skills like lifting and manual dexterity are the ones we honed in the old manufacturing economy. But two creative skills matter more now. *Analytical* skills such as pattern recognition and problem solving are extremely important to the knowledge-driven economy. And *social intelligence* skills like situational sensitivity and persuasiveness – required for team building and the mobilization of a group's skills – are also a critical factor (**Exhibit 5**).

- *Analytical skills*

This skill set includes skills such as determining how a system works and how changes in conditions will affect the outcome, developing and using rules and methods to solve problems, and quickly and accurately comparing and contrasting patterns or sets of numbers. Occupations that require the highest level of analytical thinking skills include surgeons and biomedical engineers, while those that require the least include pile-driver operators and fashion models.

- *Social intelligence skills*

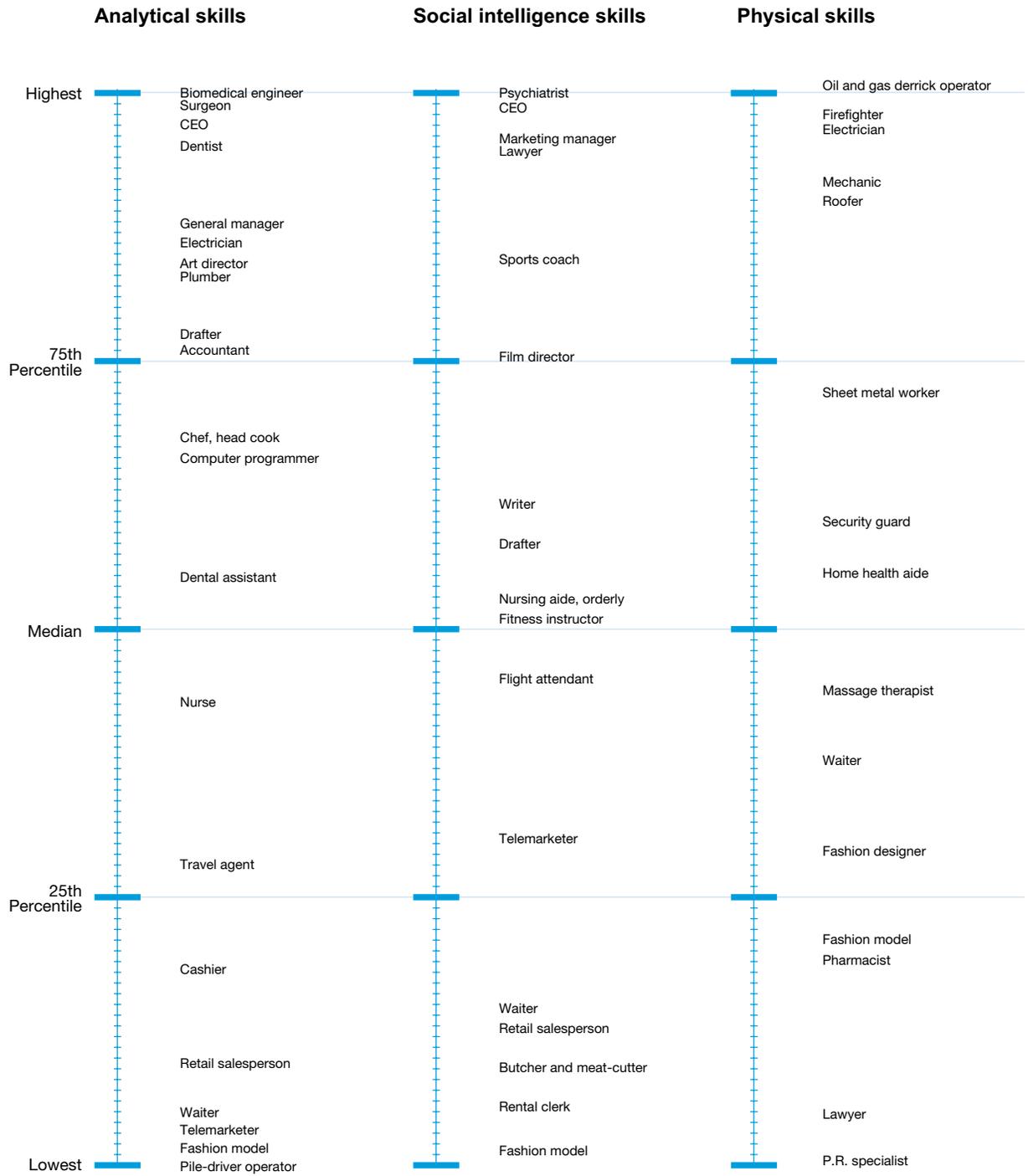
This skill set comprises abilities in understanding, collaborating with, and managing other people. It includes the ability to assess the needs and perspectives of others to facilitate negotiation, selling, and teamwork. It also includes complex thinking skills that are essential for assessing fluid, ambiguous human situations – such as deductive reasoning, the ability to apply general rules to specific problems to produce answers that make sense, or judgment – and for decision making. And it includes oral and written communication skills. Not surprisingly, the leading occupations in this skill set include psychiatrists, chief executives, marketing managers, and lawyers.

- *Physical skills*

Derrick operators are at the top of this list, along with steel workers, fire fighters, and electricians. What do they have in common? Arm-hand steadiness, strength, coordination, dexterity, and other physical abilities are some examples.

How do these skills map against jobs? The skills make-up of creativity-oriented occupations is weighed more heavily toward analytical and social intelligence skills; the opposite is true for routine-oriented occupations.

All jobs require a mix of analytical, social intelligence, and physical skills in varying degrees. While it is true that creativity-oriented occupations require a greater proportion of the two sets of creative skills, we find that all occupations require some level of creative skills. Take analytical skills. Electricians and plumbers, two routine-oriented physical occupations, generally have as many analytical skill requirements as art directors or architectural drafters, which are classified as creativity-oriented occupations. Chefs and head cooks, routine-oriented service jobs, have analytical skill requirements similar to accountants. On social intelligence skills, orderlies (routine-oriented service occupations) require social skills similar to drafters (creativity-oriented occupations).



Source: Martin Prosperity Institute and Institute for Competitiveness & Prosperity analysis based on O\*NET 12.0 database, skill and ability variables - developed for the U.S. Department of Labor.

So, while it is generally true that analytical and social intelligence skills are important components of creativity-oriented occupations, all occupations have a requirement for these skills. And as we move from occupations with lower to higher analytical and social skills, wages increase, which is not the case with physical skills.

As occupations increase in their analytical skills content, wages increase (**Exhibit 6**). For example, a physicist – near the top of analytically skilled occupations – earned on average \$67,500 in 2005, while a pile-driver operator at the bottom of the list earned \$46,500. Across all occupations, the higher an occupation is on the analytical index, the more it pays.<sup>4</sup> Our economy clearly recognizes and values analytical skills – moving from a job at the 25th percentile of analytical content to one that is at the 75th increases earnings in Ontario on average by more than a third or \$18,700. For social intelligence skills, the ramp up is even higher – \$25,100.

But when we take physical skills, the reverse pattern is true. Wages do not rise with an increase in physical skills; it's just the

reverse (see Exhibit 6). Moving from the bottom quarter to the top quarter in occupations with physical skills actually reduces earnings in Ontario by \$8,100 on average.

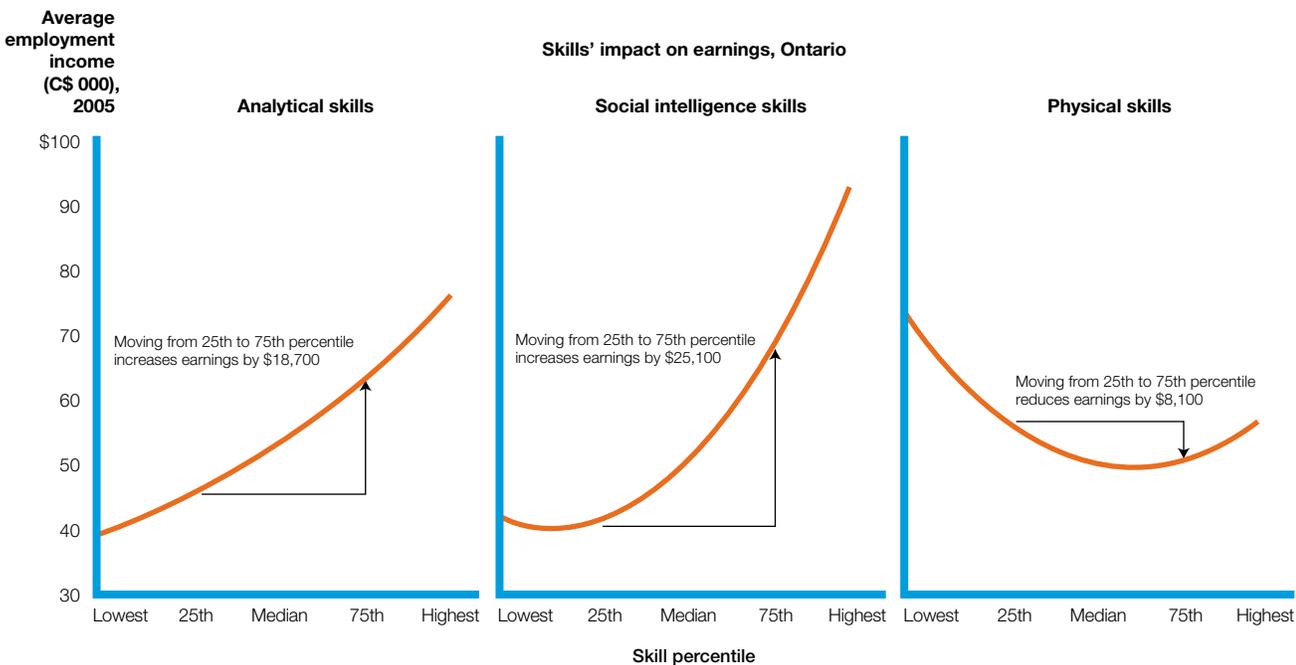
To raise wages, workers, firms, and the province would benefit from increasing the creativity content in as many jobs as possible. The key then is to shift more and more of our job market to higher analytical and social intelligence skills work.

### How does Ontario stack up?

Let's look at how Ontario values creative skills compared to its peer states – economies that resemble Ontario's and are our most significant trading partners. Ontario businesses do not value increases in the two sets of creative skills nearly as much as our peers. Ontario gets a lower jump in earnings from increases in

Earnings rise with increases in occupations' analytical and social intelligence skills but not with physical skills

Exhibit 6



Source: Martin Prosperity Institute and Institute for Competitiveness & Prosperity analysis based on Statistics Canada 2006 Census (full-time workers, excluding self-employed); O\*NET 12.0 database, skill and ability variables - developed for the U.S. Department of Labor.

<sup>4</sup> Exhibit 6 simplifies the relationship between the skill requirements and average earnings for the 728 occupations analysed – it shows the best-fit regression curve only. The “goodness of fit” as measured by the r-squared for the three relationships are: 0.20 for the relationship between analytical skills and earnings, 0.41 for social intelligence, and 0.07 for physical. Coefficients in each of the three relationships are statistically significant at the 1 percent level for social intelligence and physical skills and 10 percent for analytical skills. The relationships are still significant after controlling for other factors that influence occupational earnings, e.g., education, experience required, and training.

analytical skills (**Exhibit 7**). The pattern is even more pronounced when it comes to social intelligence skill: workers in peer states earn considerably more than Ontario workers for increased social intelligence skills. Ontario pays relatively more for increased physical skills, which is a good thing for an industrial age economy, but does little to position us to compete in the creative economy.

This is a huge challenge for our province. Since Ontario employers, compared to their US peers, value physical skills relatively more than they value analytical and social intelligence skills, workers in Ontario have a greater incentive to develop physical skills. However, employment projections indicate that the economy will demand more social intelligence and analytical skills and relatively fewer physical skills. This cycle drives our economy to compete on yesterday's skills and industries, tuning our economy and our labour market in a way that will not achieve a distinctive advantage in the creative age.

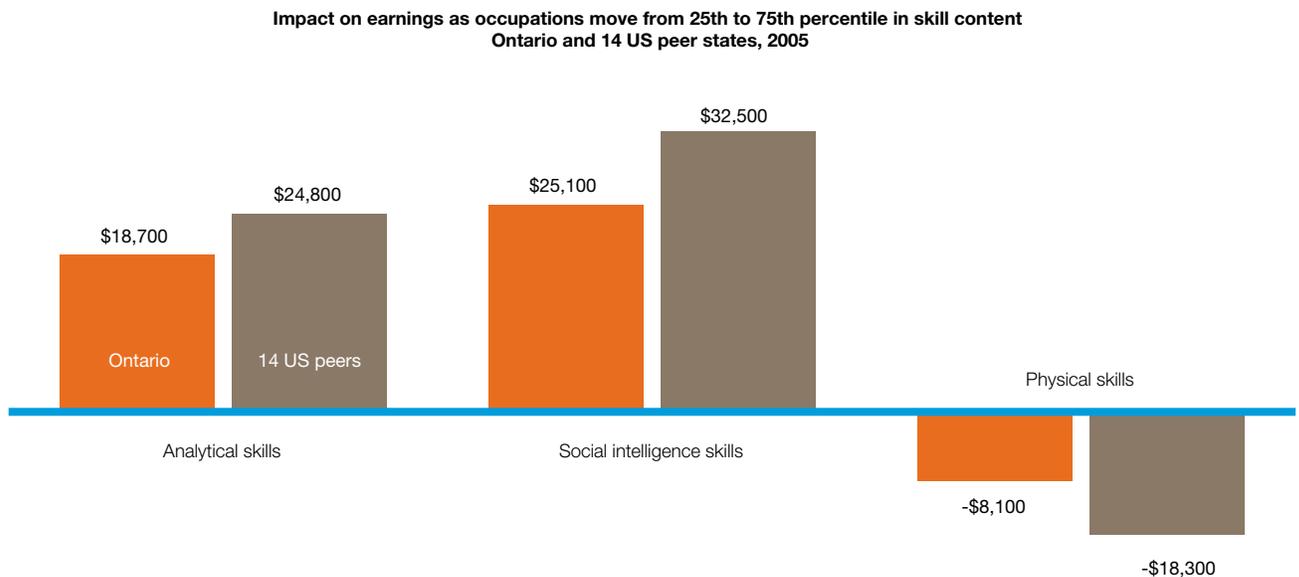
Building a distinctive advantage through a creative economy requires developing and valuing relevant skills. Our workers need

the analytical and social intelligence skills necessary to command higher wages, and employers need more sophisticated business models to warrant paying those wages. Employers and workers need to collaborate on redesigning jobs to enhance their creative content. The Japanese succeeded dramatically in enhancing the creative content of its traditionally routine-oriented physical occupations in the automotive industry through techniques such as quality circles, statistical training, and individual worker authority to stop production if necessary to attack quality problems.

Four Seasons is one of the world's leading luxury hotel chains. Since its modest beginnings as a Toronto-based motel in the 1960s, the chain has grown to encompass eighty-two hotels across thirty-four countries. Behind its many achievements lies a management ethos committed to increasing the creativity content of hotel jobs that are traditionally more routine-oriented. While most hotel chains take a narrow view of management-employee relations – in which employees have little say in how the hotel is run and guest interactions are tightly regulated – Four Seasons adopts a different approach. There, employees are constantly solicited for feedback, and management responsibility is distributed. The hotels have no customer service department, for instance; instead everyone – from dishwasher to general manager – is responsible for catering to the guests' needs. By treating its employees with dignity and leveraging their creative talents, Four Seasons is able to offer a level of hotel

Ontario under values increases in analytical and social intelligence skills

Exhibit 7



Note: Converted to Canadian dollars at purchasing power parity.  
Source: Martin Prosperity Institute and Institute for Competitiveness & Prosperity analysis based on Statistics Canada 2006 Census (full-time workers, excluding self-employed); Bureau of Labor Statistics, Occupational Employment Statistics 2005 data; O\*NET 12.0 database, skill and ability variables- developed for the US Department of Labor.

service without peer – a defining feature of the brand and one that has proved integral to its ongoing success.

We have a great opportunity to raise the creativity-oriented content and skills in jobs in Ontario. We face a great risk if Ontario's economy remains stuck at a lower level of creativity, innovation, and competitiveness than other places.

### Unleash the full creative potential of our industries

In order to prosper, our province needs firms and industries that can generate high-paying, high-skill jobs. These kinds of firms and industries that increasingly do this are those that are distinctive global competitors and concentrated geographically – our *clustered* industries. Right now, Ontario is home to several – our automotive industry in southwestern Ontario, wine in the Niagara region and Prince Edward County, technology in the Kitchener-Waterloo area, and entertainment in Toronto to name a few.

*Dispersed* industries operate in stark contrast to clustered industries. They are found everywhere across the economy. And, because they tend to serve only their local market, they don't develop economies of scale, and are less challenged to be innovative. As a consequence, they have significantly lower productivity and wage levels.

The concentration of people and industries is one of the most powerful of all economic forces. The great economist Alfred Marshall noted the power of clustering or what he called agglomeration. Economists had long understood that industries and economies can and do benefit from “economies of scale,” but what Marshall discovered is that a similar kind of productivity gains can come from businesses and people that work together in a place together. Later the Nobel prize-winning economist Robert Lucas identified that the knowledge spillovers that come from the clustering of people are the primary mechanism of economic growth and development – an insight he insisted came initially in the writings of Jane Jacobs. During the 1980s and 1990s, Harvard professor Michael Porter drew more attention to industry clusters. He identified a locational paradox – even as offshoring and globalization advance, industry clusters have become more focused in individual locations.<sup>5</sup>

These clustered industries drive economic growth in our province. The 41 key clustered industries identified by Porter – what he calls “traded clusters” – represent a third of employment in Ontario. But they drive overall productivity as measured by higher wages (20 percent above average wages across the economy), and lead in innovation as measured by patents (more than three-quarters of patents in Ontario come from these clustered industries).

Ontario has an above average concentration of clustered industries, and this should create a sizeable productivity advantage for the province. But we are not benefitting fully from

this advantage. Part of the reason is that we have less capital investment. We are also a big province and thus have less urbanization and fewer advantages from density. And, as we have found, our clusters have less creative content than those of our peers. This is where the real payoff can come. Clusters with high creativity content can drive much greater productivity and prosperity than other industries.

### Combine higher creativity content in both jobs and industries to be a world leader

We know that creativity increases economic growth and we know that clusters increase productivity. But no one had put the two together. So that's exactly what we did: we looked at the combined effects of creative occupations and industry clusters. This is the first effort, to our knowledge, to examine a region's economy through two lenses – industries and occupations. In other words, we looked at the economy from the perspective of both what workers do and what firms produce – a powerful approach to understanding our economy better.

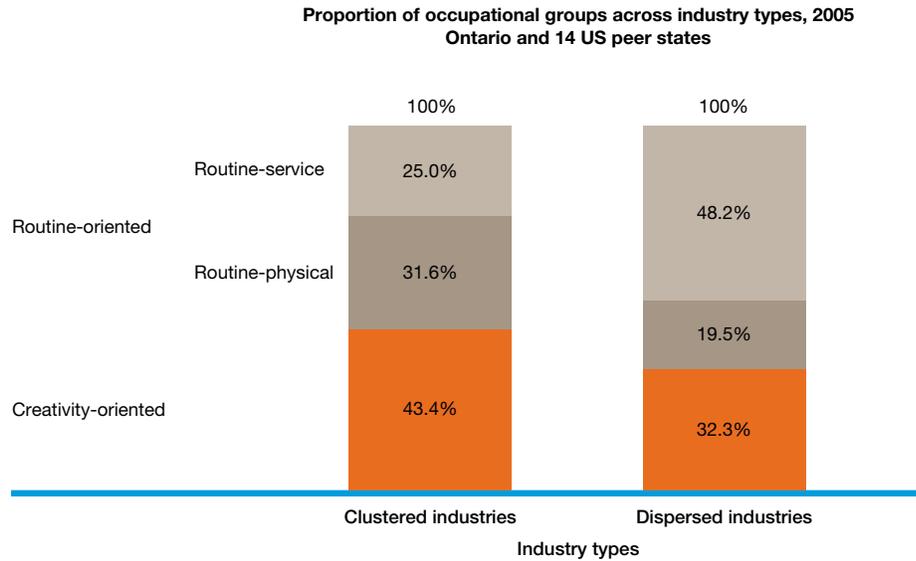
The implications for our province are striking. Clustered industries are more likely to draw on creativity-oriented occupations (**Exhibit 8**). The greater propensity to use creativity-oriented occupations occurs because these industries compete on productivity and value-added innovation and are more likely to be challenged to upgrade continuously by global competitors. Those in routine-oriented physical occupations are also more likely to be employed in clustered industries. This is driven largely by the need for successful North American manufacturers to achieve scale to compete effectively.

Workers in routine-oriented service occupations are more likely to be employed in dispersed industries. Many of these industries are primarily local service providers, like restaurants and local banks, and they rely more on face-to-face or personal service.

Wages are dramatically higher for workers in creativity-oriented occupations in clustered industries – more than twice as high as those in routine-oriented occupations and about 28 percent higher than those in creativity-oriented dispersed industries (**Exhibit 9**).

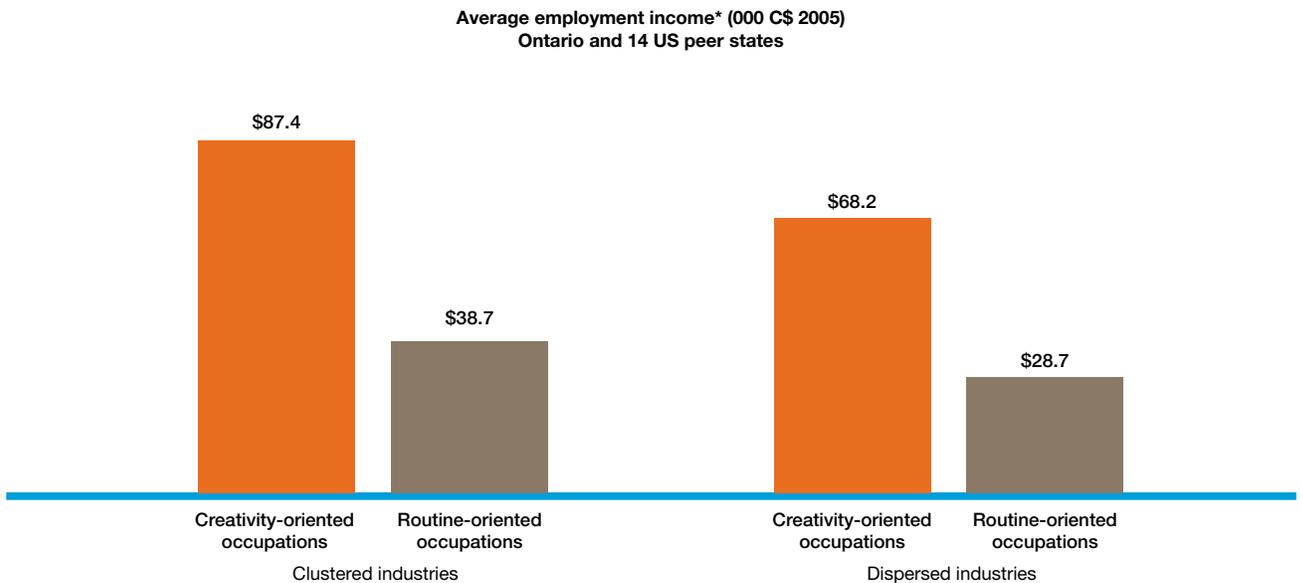
5 “Q&A with Michael Porter”, *Business Week*, Aug. 21, 2006.

Clustered industries draw more on creativity-oriented occupations



Note: Full time and part time combined.  
 Source: Martin Prosperity Institute and Institute for Competitiveness & Prosperity analysis based on data from Canadian Census, 2006; Canadian Business Patterns, 2006; American Community Survey, PUMS 2005; US County Business Patterns, 2005.

Creative clusters generate higher earnings



\* Weighted Average.  
 Notes: Converted to 2005 Canadian dollars at purchasing power parity; Full time and part time combined.  
 Source: Martin Prosperity Institute and Institute for Competitiveness & Prosperity analysis based on data from Canadian Census, 2006; Canadian Business Patterns, 2006; Statistics Canada, Table 380-0057; American Community Survey, PUMS 2005; County Business Patterns, 2005.

And Ontario wages lag behind our peers. The premium paid to our workers in creativity-oriented occupations versus those in routine-oriented occupations is much lower than that in the US peers. And the premium paid to workers in creativity-oriented occupations in our clustered industries versus their counterparts in dispersed industries is also lower than that in the peer states (**Exhibit 10**). In Ontario, creativity-oriented occupations in clustered industries generate earnings that are 63 percent above the provincial average, which sounds good until you consider that the premium is a whopping 89 percent in our peer states.

Furthermore, our clustered industries do not have the same level of creativity-oriented occupations as those in the peer states. Ontario has a relatively high share of clustered industries that by their nature have high creative content (e.g., financial services, education and knowledge creation, information technology) – operating with a higher percentage of workers in creativity-oriented occupations.<sup>6</sup> This is an important advantage that Ontario can build upon. However, we dissipate that advantage by operating these industries with less creativity content than in the peer states (**Exhibit 11**).

Consider this: if Ontario’s creative content in clustered industries matched that in the US peers, we would realize a 4.4 percent wage increase across all Traded industries.

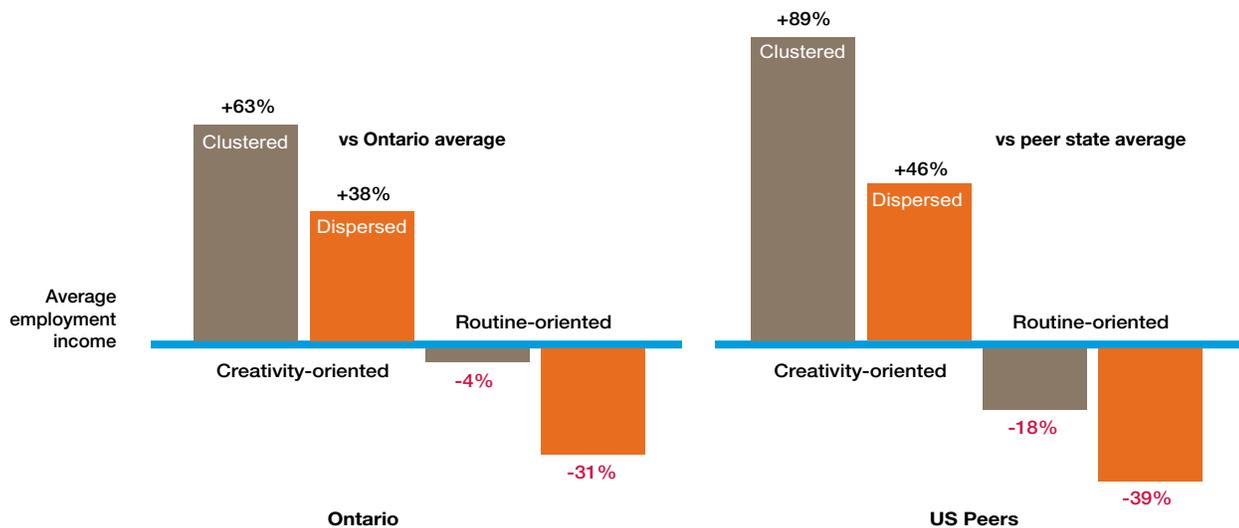
The net result is that Ontario’s economy is not performing as well as it should. Our economy thus appears tuned to a lower level than our peers’.

For Ontario to prosper, workers in creativity-oriented occupations need the skills necessary to command higher wages, and employers need more sophisticated business models to warrant paying those wages. Otherwise, potential and existing creativity-oriented workers will not invest in acquiring and upgrading the valued skills they need and thus not develop to their full potential. This will result in Ontario’s economy languishing at a lower level of creativity, innovation, and competitiveness.

Wage differences between the occupational groups and industry groups are much less prevalent in Ontario than in peer states

Exhibit 10

Employment income comparison by occupational groups and industry types, 2005  
Ontario and 14 US peer states



Note: Full time and part time combined.  
Sources: Martin Prosperity Institute and Institute for Competitiveness & Prosperity analysis based on data from Canadian Census, 2006; Canadian Business Patterns, 2006; Statistics Canada, Table 380-0057; American Community Survey, PUMS 2005; County Business Patterns, 2005.

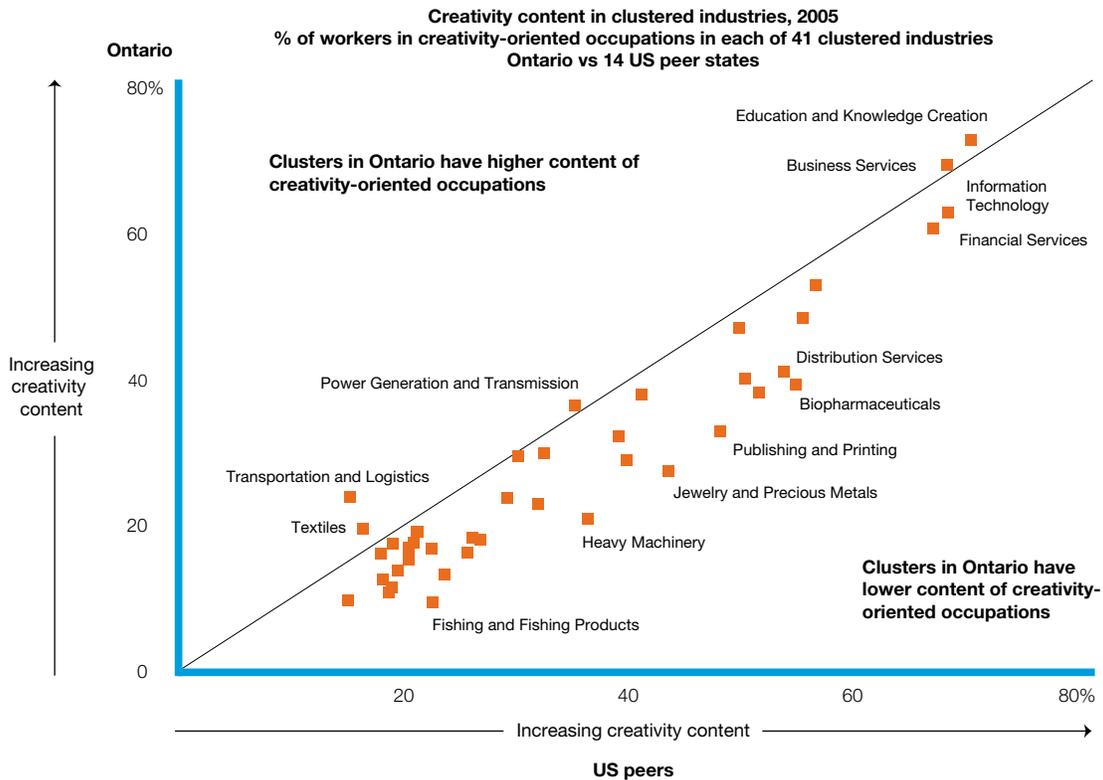
6 Forest products, furniture, and textile industries are examples of clustered industries that operate with a lower percentage of workers in creativity-oriented occupations

We must increase the creativity content of all our occupations and industries. The increased efficiency from better job design along with greater use of technology and better management will make these occupations more efficient and thus require fewer workers. This will allow for a shift in employment from dispersed industries to clustered industries. At the same time, we must encourage the greater presence of creativity-oriented occupations in clustered industries.

**We have nothing to fear from the transformation of our industrial structure to creativity-oriented services. This is an opportunity to make great advances in our collective prosperity.**

Ontario has less creative content than US peers in 36 of 41 clustered industries

Exhibit 11



Note: Full time and part time combined; results are weighted average across 14 peer states.  
Sources: Martin Prosperity Institute and Institute for Competitiveness & Prosperity analysis based on data from American Community Survey, PUMS 2005; County Business Patterns, 2005; Canadian Census, 2006; Canadian Business Patterns, 2006.

## CAPTURING ONTARIO'S DIVERSITY ADVANTAGE

**Economic development is driven by 3Ts – tolerance, talent, and technology. All three are critical to generating sustained economic growth and prosperity.**

A place like Pittsburgh or Rochester can have substantial technology, but will fail to grow if talent leaves, and it lacks the openness and tolerance to attract new people. By contrast, a place like Miami may be a magnet for openness and tolerance, but it too will lag without technology and talent. The places that grow and prosper, like Silicon Valley or Seattle, are those which perform well on all 3Ts.

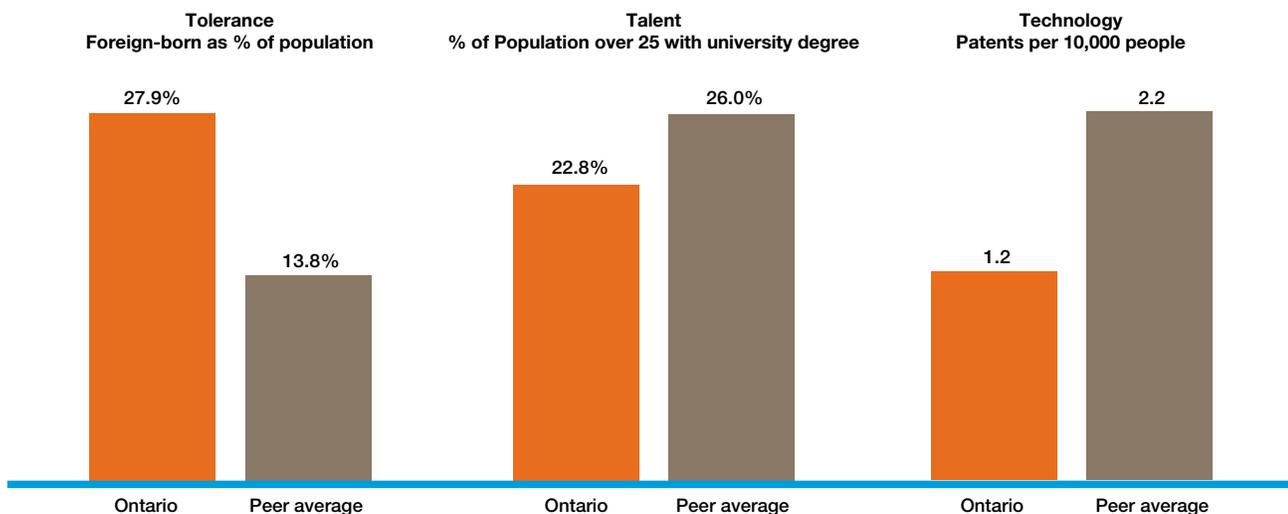
Ontario's long legacy of tolerance and diversity makes the province a better and more inclusive place to live, but it also adds an important "non-market" advantage. We do less well on talent and technology.

On **Tolerance**, our research as well as that by others<sup>7</sup> shows how provinces and states, cities, and nations can all gain an important economic boost from being open and tolerant. Openness to outsiders, newcomers, immigrants, minorities, and gays and lesbians signals a community that is open to all types of people – and has low barriers to entry for talent – enabling that place to attract the best and brightest from around the world. This is a core advantage of high-tech centres like Silicon Valley, where according to recent studies between a third and a half of all high-tech startup companies have a new immigrant on their founding team. Openness to diversity demonstrates broader receptivity to new ideas, intellectual freedom, risk tolerance, and an entrepreneurial spirit.

There are several measures of diversity on Tolerance and our research indicates that Ontario out performs on nearly all of them. As an example, Ontario out performs all peer jurisdictions on the Mosaic Index, which measures the percentage of the population who are immigrants. Ontario's population has 28 percent immigrants compared to 27 percent

Ontario out performs US peers on tolerance, but under performs on talent and technology

Exhibit 12



Source: Martin Prosperity Institute analysis based on data from Statistics Canada Catalogue no. 94-581-XCB2006007 & 94-581-XCB2006004; US Census Bureau, 2006 American Community Survey; Patent analysis: Dieter Kogler, Department of Geography, University of Toronto; USPTO (1975-07).

<sup>7</sup> Ronald Inglehart, *Modernization and Postmodernization: Cultural, Economic, and Political Change in 43 Societies*, Princeton University Press, 1997.  
S. Page and L. Hong, "Groups of diverse problem solvers can outperform groups of high-ability problem solvers," *Proceedings of the National Academy of the Sciences*, 16385-16389, 2004. M. Noland, "Tolerance Can Lead to Prosperity," *Financial Times*, Aug. 18, 2009.

for British Columbia and California, the next highest regions in North America, and 14 percent for the average of all Ontario's peer regions (**Exhibit 12**).

Our research also found that openness to immigrants and visible minorities is strongly related to higher regional incomes in Ontario. Open immigration policy is paying significant dividends in economic development, and we need to capture more of this in Ontario. Ontario's openness to gays and lesbians is strongly associated with higher percentages of well-educated workers and the presence of creativity-oriented occupations.

Yet Ontario's diversity advantage is not translating to innovation and prosperity. This is certainly the case in comparison to our US peers, where states and cities gain more in terms of economic performance from diversity and openness. Our challenge is to increase our "take" from this diversity and tolerance advantage.

The second T of economic development is **Talent**. Prosperity is closely associated with concentrations of highly educated people (or what social scientists call "human capital"). Ontario trails the leading peer states by a wide margin on measures of educational attainment (see Exhibit 12). Ontario performs better than the average of its peers, with 30 percent of the workforce employed in creativity-oriented occupations; still, it lags jurisdictions like Massachusetts, which has 37 percent of its workforce in creativity-oriented occupations.

**Technology**, the third T, is critical to economic growth. Technology is a public and private good that increases wealth, attracts talent to regions, and leads to economic growth. Innovation, often associated with the notion of technology, can come in the form of product or process improvement, and the benefits of these improvements accrue widely across individuals, firms, and regions. As a share of total employment, Ontario's high-tech industry employment is among the highest in North America. However, the province has a low level of innovation as measured by patents (see Exhibit 12).

Our research indicates that both human capital and the presence of creativity-oriented workers have a direct effect on regional income. Management, business and finance, and science occupations have a sizeable effect on regional income; arts and culture occupations have a significant effect on technology; health and education occupations have no effect on regional income. While a region can innovate, it takes management to convert that innovation to regional prosperity.

Our findings shed new light on the ways that Canadian regional development is shaped by the 3Ts. Talent, in the form of human capital and creativity-oriented occupations, is strongly associated with regional income. Technology affects regional income alongside human capital, creativity-oriented workers, and openness to gays and bohemians. Tolerance is a strong suit in Ontario's economic development, providing considerable direct and indirect effects on talent and regional income. Tolerance towards gays and bohemians is strongly associated with both human capital and creativity-oriented occupations, while tolerance in the form of openness to immigrants and visible minorities is strongly related to regional income.

**Ontario's openness and cultural diversity are significant advantages. A tolerant and inclusive culture does not guarantee success, but it often provides greater access for all individuals by focusing on merit and skills. The continued development of an already strong culture of tolerance can improve the attraction and retention of talent when paired with the right support and incentives for developing technology and the commercialization of Ontario-born innovations. This suggests that Canada's experiment in opening up to immigration is paying significant economic development dividends and will pay off even more if we can also raise our achievements in talent and technology.**

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## OPENING CREATIVE OPPORTUNITIES FOR ALL

**The rise of creativity is a double-edged sword. It creates tremendous wealth creation opportunities for some. Yet it can leave many behind – particularly those in jobs built on routine, and those who do not have the opportunity to gain the skills to participate advantageously in the economic transformation we are going through. Even though Ontario has greater equality and cohesiveness than our US peers, we can make great improvements by harnessing the creative age for even greater equality. Not to do so would be a terrible waste of human potential.**

The creative age presents us with the opportunity to raise our economic valleys, not cut down our peaks. Ontario's challenge is to create a new social safety net system for the creative age – in a compact that partners with those who have the determination to participate fully in the creative economy.

Inequality in Ontario has grown since the mid-1970s. While this long-term trend is troubling, the increase in inequality appears to have been considerably greater from 1976 to 1995, than in the more recent period since the mid-1990s. On an after-tax basis, inequality has not risen as dramatically – as the redistributive impact of transfer payments and progressive taxation has mitigated the level and trend in inequality.<sup>9</sup> The increase in inequality has been driven more by faster income increases at the top of the distribution than by deterioration at the middle and the bottom. The consensus, but not unanimously so, is that globalization favours more skilled workers – the so-called skills-based technical change hypothesis.

Inequality is likely to rise as the share of creativity-oriented occupations increases in the work force. As we have seen, their income has much more upside than other occupations.

### **Make the creative age work for those in routine-oriented jobs**

Among the challenges of the creative age is making it work for those in routine-oriented occupations be they routine-physical or routine-service occupations. The opportunity is to involve more Ontarians in the creative economy, thereby reducing inequality and building on our cohesive social structure.

The trend towards creativity-oriented occupations is a positive one, as these occupations pay higher wages than the others. Workers in these occupations also experience lower unemployment rates generally and are much less affected by recessions. It is interesting to note that unemployment in creativity-oriented occupations has never reached *as high as* 4 percent in the last two decades while unemployment for those in routine-oriented occupations has never gotten *as low as* 4 percent (**Exhibit 13**). These two groups face entirely different labour market outcomes.

The growth of routine-oriented service occupations presents a significant challenge for Ontario, as it does for jurisdictions across the advanced industrial world. These low paying jobs are growing rapidly. More Ontarians are in routine-oriented service occupations, and this has been the case since 1961 when employment in this group passed employment of those in routine-oriented physical occupations. Wages for routine-oriented service occupations are, on average, 28 percent lower than the average for full-time and part-time employees in the rest of the economy, and 52 percent lower than the average in the creativity-oriented occupations.

Workers in routine-oriented service occupations are more likely to be part-time workers. In 2007, 29 percent of them were part-time compared with 13 percent in the creativity-oriented occupations and 6 percent in the routine-oriented physical occupations. From an industry perspective, routine-oriented service occupations dominate in accommodation and food services, retail trade, and real estate, rental and leasing.

Demographically, those in routine-oriented service occupations are more likely to be female than those in other occupation groups. Nearly 63 percent of workers in routine-oriented

<sup>9</sup> See Institute for Competitiveness & Prosperity, *Working Paper 10: Prosperity, inequality, and poverty*, September 2007, pp. 20-27 for analysis of inequality trends in Ontario.

service occupations are women compared to 17 percent in routine-physical occupations and 49 percent in creativity-oriented occupations. Workers in routine-oriented service occupations do not differ in other demographic descriptors – they are equally likely to be recent immigrants or visible minorities, and their knowledge of Canadian official languages does not vary. Workers in routine-oriented service occupations are less likely than those in creativity-oriented occupations to have a university degree, but they are more likely than those in routine-oriented physical occupations to have a degree. Full-time workers in routine-oriented service occupations are slightly younger than those in creativity-oriented occupations, but about the same as those in the routine-oriented physical occupations.

Single mothers are over represented in routine-oriented service occupations – 57 percent of lone parents are in these occupations, compared with 46 percent of all workers. Workers in service occupations are not significantly over represented in other poverty groups identified

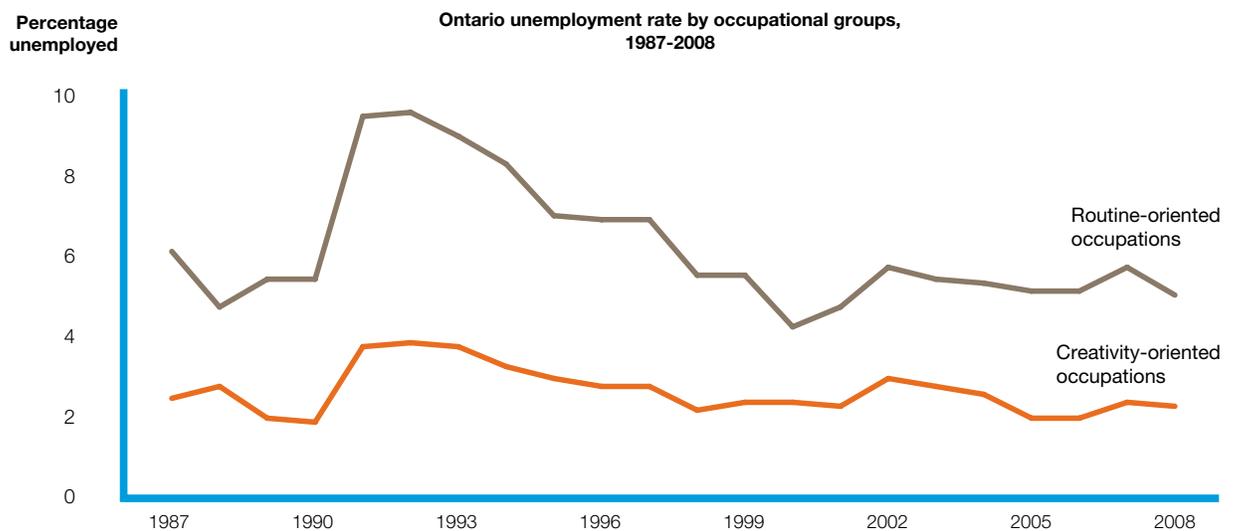
by Statistics Canada and the Institute for Competitiveness & Prosperity (recent immigrants, high school dropouts, Aboriginals, and unattached individuals aged 45 to 64).<sup>10</sup>

The decline of routine-oriented physical occupations presents other challenges. These jobs have long been seen as the bedrock of middle class life and of social stability, providing high wages and job security. But this is only partly true. Many of these routine-oriented physical jobs pay relatively low wages. In fact, as a whole, these jobs pay less than the average across the economy. Furthermore, many of them are exposed to global competition. Those occupations that are not based on distinctive skills are vulnerable to competition based on cost.

We need to recognize that jobs that are high paying, but not highly skilled or contributing to a high value-added firm will not be around for the long term. This is a painful transition in our economy – but we don't have the option of ignoring it or fighting it. To gain a distinctive advantage for Ontario, we need to guide the development of workers in routine-oriented physical occupations toward those that are highly skilled and where workers draw on their full creative potential to make decisions rather than be bound by dictated routines and processes. An important key to achieving this source of distinctive advantage is to prepare our current and future workforce and industries for the skills requirements we will be facing in the coming decades.

Routine-oriented occupations have higher unemployment rates and were even harder hit by the recession in the early 1990s

Exhibit 13



Note: The LFS produces information of number of unemployed, the unemployment rate and the labour force by industry and occupation. The basis for these categories is industry or occupation of last job for those currently unemployed who have held a job in the previous year. Source: Martin Prosperity Institute and Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada, Labour Force Survey micro data for the month of April.

<sup>10</sup> See *ibid.*, pp. 28-45 for a discussion of groups of Ontarians with high risk of being in low income situations.

A significant impact of the decline in routine-physical jobs is unemployment among older workers who have had long tenure with a single employer, and then earn lower wages at their next job. The financial impact of the period of unemployment is typically less than the longer-term impact of lower earnings.

A recent study by Statistics Canada<sup>11</sup> indicates that male workers between the ages of 25 and 49 who lost their jobs during the years 1983 to 2002 through firm closures or mass layoffs with the firm and subsequently found new jobs, were earning on average between 9 and 22 percent less five years later. The average earnings reduction for females was between 12 and 35 percent. Earnings losses by displaced workers with five or more years of seniority were higher than for other workers, with losses ranging from 18 percent to 35 percent for among men and 26 to 35 percent among women. The researchers compared the experience of displaced workers during the 1987-92 period, which experienced a severe recession and the 1993-97 recovery period. The earnings impact was more severe during the recession.

Insurance for the period of unemployment and effective retraining programs are useful tools against the uncertainties of the labour market. But we need targeted approaches to ease the transition for workers who are forced to move to lower paying occupations. In addition to formal skills training, we need to help ease the transition to lower paid work and on-the-job training opportunities for some workers.

### Connect vulnerable groups to the creative economy

The Ontario Government's recently released Poverty Reduction Strategy, *Breaking the Cycle*, makes the case against poverty as well as anybody:

*"[Besides the moral imperative] we have another equally compelling rationale for reducing poverty. As a society, we can't afford it. An educated, healthy and employable workforce is critical to the economic future of this province. Our economy is changing before our eyes and we need everyone to be ready to contribute to our future prosperity."*

Our province needs to make a sustained effort at improving skills across the board. We need to shift our employment toward higher skill creative work and clustered industries and to upgrade routine-oriented service work. This is particularly true among groups who are at higher risk of being in poverty. By definition, high school dropouts are lacking in skills. Single parents, especially those lacking in education, are time-challenged to gain skills. Recent immigrants, while highly educated, require some skills investment to pursue their chosen fields. For others, like

the disabled and Aboriginals, participation in the labour force is the major challenge.

For both individuals and economies, income growth and skills development are mutually reinforcing. More income creates opportunities for investing in skills development; enhanced skills, as we have seen, increase earnings. Yet the relationship can work in reverse towards a vicious cycle. Lower income Ontarians are at economic risk because they lack skills; acquiring skills through post secondary education is a challenge for low-income individuals and families. This can lead to a lifetime and inter-generational cycle of low income and poverty.

Access to post secondary education is clearly related to family income. In Canada, 46 percent of children from the top income quartile attend university compared to 29 percent from the bottom quartile. This attendance gap is much more severe in the United States, where 63 percent of the highest income quartile families send their children to university, compared to 15 percent from the lowest quartile.<sup>12</sup>

But while income is a determinant of access to post secondary education, the story is more complicated. Various researchers have concluded that income boosts participation in post secondary education indirectly – through skills. For example, US research indicates that children of similar scholastic abilities attend university at about the same rate – largely irrespective of income difference – but children in higher income families have greater access to skills development opportunities through life, for example an enriched home environment and better neighbourhood schools.

There is an enormous opportunity for our province here. While we must work to help all Ontarians improve their skills and qualifications, the greatest opportunity of all lies in early childhood development. Nobel Laureate James Heckman concludes that early and later childhood environments are critical determinants of lifetime skills development. In fact, he has shown that a cost-benefit approach to skills investments shows that returns to skills development investment decline continuously throughout the aging process (**Exhibit 14**).

<sup>11</sup> Rene Morissette, Xuelin Zhang, and Marc Frenette, *Earnings Losses of Displaced Workers: Canadian Evidence from a Large Administrative Database on Firm Closures and Mass Layoffs*, Statistics Canada, January 2007.

<sup>12</sup> Marc Frenette, *Is Post-Secondary access more equitable in Canada or the United States?*, Statistics Canada, March 2005.

He argues that the returns to society on investments in early childhood development for at-risk youth among high risk groups dwarfs the returns from retraining adult workers.

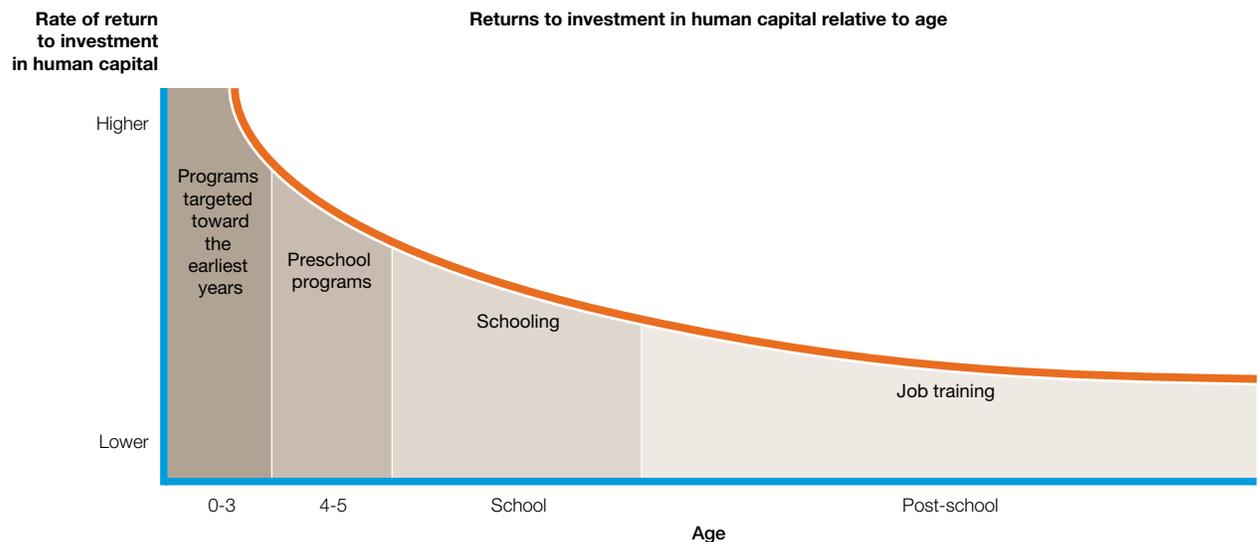
The kinds of attitudes and skills developed in early childhood are truly lifelong skills that are critical for successfully competing in the creative age. These include:

- Caregiver trust, which leads to higher confidence, less rigid approaches to problem solving, and higher levels of curiosity later in life
- Language acquisition skills, which are important for verbal conflict resolution and curbing aggressiveness
- Appreciation of relative quantities, which helps in later high order, non-rote mathematics
- Symbol recognition, which is essential to advanced verbal and quantitative processes.<sup>13</sup>

The road to reducing inequality and increasing social cohesiveness is to increase the creativity content of work. Both require investments in skills and both will be mutually reinforcing to create significant long-term advantage for Ontario.

Returns to investment in early childhood development are higher than for those in later life stages

Exhibit 14



Source: James J. Heckman, *Schools, Skills, and Synapses*, May 2008.

13 James J. Heckman, *Schools, Skills, and Synapses*, Discussion Paper No. 3515, Institute for Study of Labor, May 2008.

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## BUILDING GEOGRAPHIC ADVANTAGE

**Ontario is a big province that has built its prosperity on many inherent geographical advantages. We have rich natural resource areas and a world-class industrial corridor. While we have prosperous cities, the non-metropolitan parts of Ontario are more prosperous than their US counterparts. Future success in the creative economy will require different advantages. The clustering and agglomeration of the right mix of skills and industries will be an important requirement. The world isn't flat – it's spiky – and becoming spikier. The rise of mega-regions puts a premium on density and on velocity of circulation of both people and ideas.**

The combined effects of an idea-driven, creative economy and globalization are making location more important, not less. The spiky world means that some locations, like Toronto and the Greater Golden Horseshoe, Ottawa, and Kitchener-Waterloo Region will do well, while other regions will fall behind. This is not a desired outcome, but it is our reality. We need strategies that actually turn these trends to Ontario's advantage.

The old industrial age meant that almost any region could pump resources out of the ground or attract a factory and build an economy. That model no longer works. Today's economy is based upon skill and talent clustering.

We are now moving toward a new economic landscape structured around the mega-region, composed of multiple cities and their surrounding suburbs and hinterlands. The world's forty largest mega-regions account for less than one-fifth of the earth's people but produce two-thirds of its economic output and 90 percent of its innovations. A good example of this is the Boston-NY-Washington corridor, which is home to 50 million people and generates more than \$2 trillion in economic activity.<sup>14</sup> Our own mega-region, which includes Toronto, and stretches from Rochester through the Golden Horseshoe to Montreal, includes 22 million people and generates US \$530 billion in economic activity. Globally, we are seeing a significant migration, with mega-regions attracting talent from regions, countries and around the world.

### Three Ontarios face different prospects in the creative age

Ontario can be divided into three types of places. The first set is well positioned for the creative age. This region clearly helps to differentiate Ontario from the many other cold, rustbelt declining states – like Michigan, Ohio, Pennsylvania, and even upstate New York. It comprises:

- The Toronto region, which is a core city steeped in finance, high end services, and media, culture, and entertainment and has an industry and occupation mix like New York City or Los Angeles or London. Parts of this broader region have not yet successfully made the transition for success in a creative, global economy.
- Greater Ottawa, which like Washington DC, has a huge number of creativity-oriented occupations related to the increasing role of government and has transitioned to a more post-industrial economy. Ottawa also has a technology strength based around telecommunications.
- The Kitchener-Waterloo/Cambridge/Guelph region, which is a budding technology hub and will be a huge part of Ontario's future. It includes not just Research In Motion and related firms. It is home to world class universities and research institutes.

The second set of places includes older industrial cities like Windsor, Hamilton, Oshawa, and others. Of all of these regions, Hamilton appears to be adjusting the most successfully. It is almost in Toronto's commuter shed and can be made more so. Hamilton is beginning to show the value of aligning within the larger region. It has had longer to adjust, as a steel town, its decline came much earlier. The comparison of Hamilton to Windsor or Oshawa is much like the comparison of Pittsburgh to Detroit. It has had time to try to rebuild. The other industrial legacy cities are more closely tied to the automotive industry. Success for these cities will require massive retooling, either within or away from the auto industry.

<sup>14</sup> Economic activity is based on Light Regional Product (LRP). See Richard Florida, Tim Gulden, Charlotta Mellander, "Rise of the Mega-Region," Martin Prosperity Institute Working Paper, April 2008.

The long-run success of Windsor lies in Ontario and not in Michigan. Similarly, Oshawa will need stronger ties with Toronto for future prosperity.

The third set of places includes parts of rural and northern Ontario and some of the inner city places that are increasingly disconnected from the creative economy. These places are challenged by the fact that workers in creativity-oriented occupations are concentrated in a small number of city regions (**Exhibit 15**).

Toronto accounts for almost 50 percent of all of Ontario’s creativity workers, and the five largest regions account for more than 70 percent. Although there is some variation, the smaller the region, the lower the share of the workforce in creativity-oriented occupations. Work, globalization, and the nature of competition are changing the prosperity equation – substantial resources and hard work are no longer enough. Creativity and innovation are required more and more.

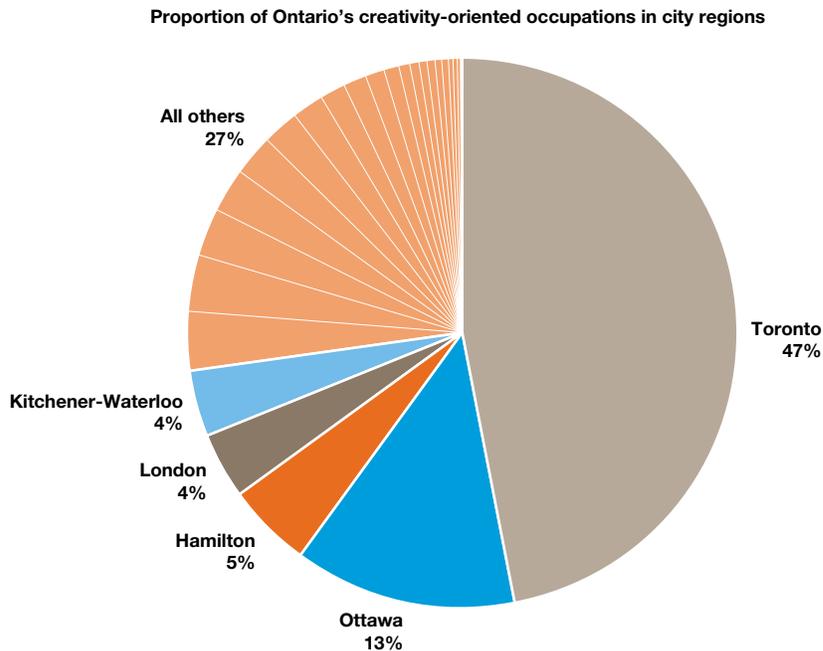
Creativity and innovation are generated by talented, skilled people – people who increasingly see greater benefits from living in larger, denser regions where people and ideas are fast moving. While a slower pace and non-metropolitan living will appeal to some, it’s clear that they do not offer benefits to enough creative workers to sustain these smaller more distant locations. These disconnected places face a future of decline unless they are better connected to the first Ontario.

Ontario needs to find ways to connect those regions that could potentially be left behind to the winners and build more connective fibre. Some weak connections are already in place, but we need to build more substantial connections and further unify the Toronto/Greater Golden Horseshoe/Ottawa/London mega-region. At the same time, we need better connections between the mega-region to outlying areas.

There are many alternative ways to build this infrastructure, but we propose the province orient its infrastructure strategy around a simple goal – to speed the movement of goods, people and ideas and reduce wasted time spent commuting.

Workers in creativity-oriented occupations are concentrated in a small number of Ontario city regions

Exhibit 15



Source: Martin Prosperity Institute analysis.

The numbers add up quickly. The province would reduce lost wages by \$12.2 billion every year, and 543 million hours of travel time by lowering average commuting time by ten minutes for commuters within a community (e.g. inside Toronto or London), fifteen minutes for commuters across a community, and twenty minutes for within-province commuters (e.g. Ottawa to Kingston). The benefits would move lock step with the time savings – so that a tripling of the time savings would increase the financial benefit to \$36.5 billion in wages and 1.63 billion hours of commuting time.

### **The creative age requires new infrastructure**

The relentless growth of the information economy creates the opportunity for improving the quality of a place to attract creativity workers. As our economy evolves, our physical infrastructure has to move from one that moves people and things to a more subtle, but powerful system that also helps in generating and transporting ideas. In Ontario, we are in a position to invent this new infrastructure and system architecture. This new system must do two things. It must keep Toronto connected to other mega-regions around the world, primarily through air transportation and global logistics capabilities. At the same time, it must provide excellent mobility for people and ideas around the mega-region.

Every great epoch of economic development is defined by the rise of new technologies and new industries and by new geographic systems and living patterns – or what geographers call the “spatial fix.” Suburbanization, for example, was the spatial fix for the mass production industry. By spurring demand for houses, cars, and durable goods, suburbanization helped to create demand, which powered growth in the so called golden age of postwar economic growth.

Changes in physical infrastructure have been a catalyst for setting in motion these new spatial fixes and driving long-run economic growth, as Christopher Kennedy, our colleague at the University of Toronto, shows in his forthcoming book, *The Wealth of Cities*. Canals and railroads in the nineteenth century, the development of electricity distribution at the beginning of the twentieth century, the highway systems in the 1960s, and the ongoing growth of telecommunications networks are prime examples. Infrastructure changes are often a response to severe stresses, such as the rebuilding of London, England, with wider and more standardized road networks after the great fire of 1666 or the rebuilding of Europe after the devastation of two world wars.

It is hard to know in advance what the complete infrastructure of the creative age is or could be. This will only evolve over time in response to crises and opportunities. One thing is for certain, however. Rising energy prices are leading to quests for lower costs on a sustainable basis. As we search for alternate forms of energy supply, we may find it advantageous to integrate more

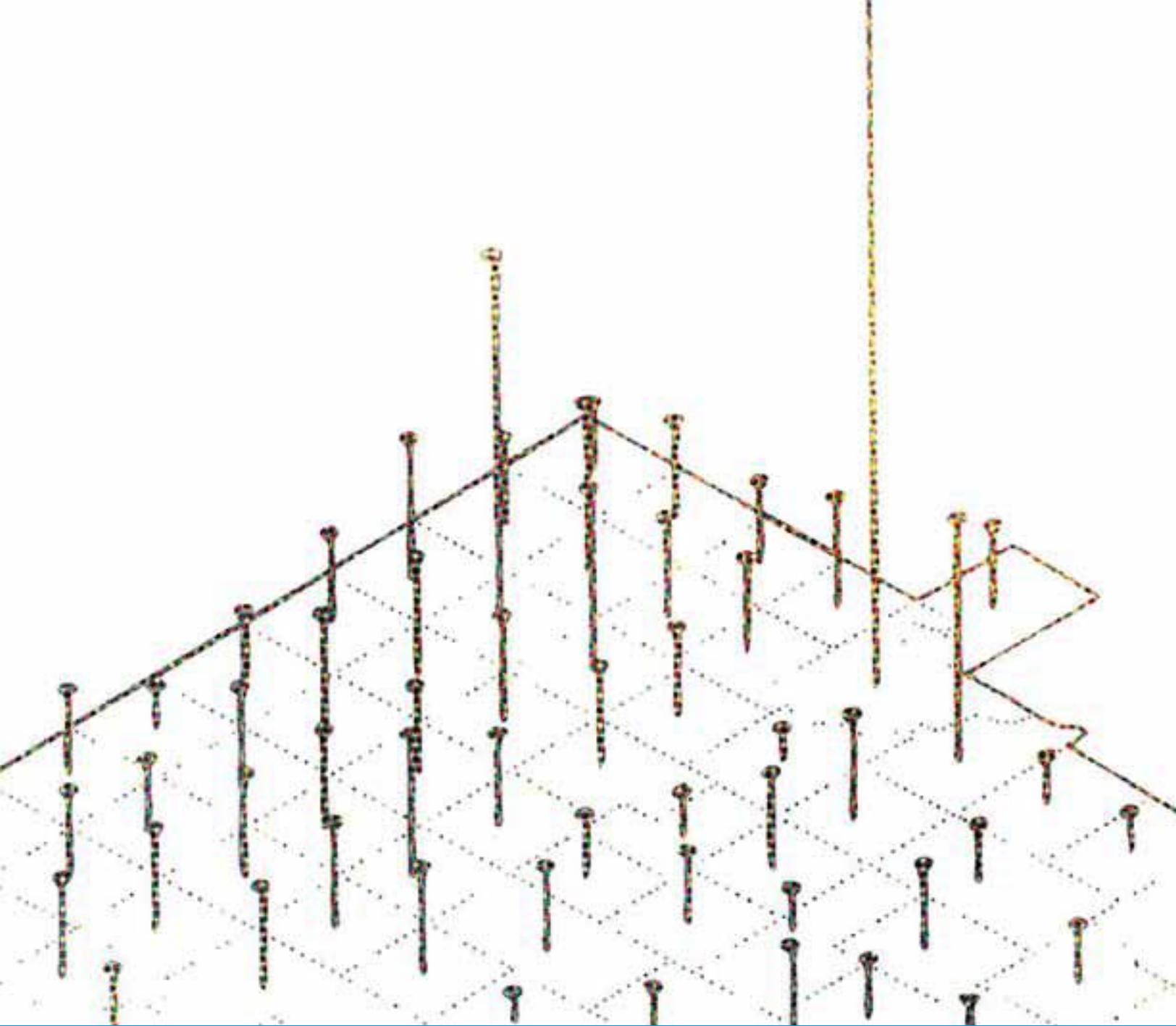
tightly our energy systems for transportation, heating, and electricity use; these are now largely independent today.

It is important to recognize that the history of economic development is a history of more intensive use of space. That may sound somewhat strange to those who think of suburbanization as sprawl. But suburbanization massively extended the boundaries of our economic landscape, turning once rural areas into industrial, commercial, and residential centres. Before the industrial revolution, most people lived in rural areas, and cities and towns were small. The industrial revolution brought with it giant industrial cities like Detroit and Pittsburgh – which expanded the boundaries of where people lived and also increased densities. Likewise, suburbanization expanded the boundaries of cities and regions, leading to the development of metropolitan regions composed of central cities and their suburbs, and some of these metro regions developed multiple centres for business and economic activity. In this sense, suburbanization was a movement further along in the more intensive use of urban space.

Today, the shift from suburbs and metropolitan areas to mega-regions composed of multiple cities and suburbs is the next step in the more intensive use of urban space beyond the previous period of metropolitanization and suburbanization. These mega-regions reflect the natural progression of geographic space from agricultural villages to merchant towns to industrial cities to postwar suburbs, made up as they are of interconnected sets of core cities and their surrounding suburbs.

Just as suburbanization expanded the boundaries of where we live and work while increasing and intensifying the use of space, mega-regions take this one step further. The coming decades will thus likely see increasing densities and further clustering of industries, jobs, and innovations in a smaller number of mega-regions. Alongside that will come ever more concentrated economic opportunity and deepening social and economic divides between people and places. Those jurisdictions that best adapt to this new geographic system and build the connectivity and velocity required will gain a significant prosperity advantage.

Developing the broad infrastructure to connect our province will increase the speed and velocity with which we move goods, people and ideas, and become a first mover globally in developing a new and more competitive economic landscape. At this historic turning point, we cannot afford simply to maintain and rebuild the infrastructure of the past. Just as we did with the highway system to help with the last spatial fix of suburbanization, we need an infrastructure that supports the new age of denser, and ever more connected mega-regions.



## Agenda for Ontario's creative age



Economic transformations, like the current one, are opportunities for jurisdictions to change the terms of prosperity and competition. Ontario is well-positioned to compete in the global creative economy. The current economic crisis provides a once in a lifetime opportunity to leap-frog the competition and to gain a significant first-mover advantage. By taking bold action now, Ontario can simultaneously remake its economy for the future, improve its position in global competition, and ensure a higher level of prosperity for its citizens.

While the provincial government has a role in stewarding and investing in this transformation, to be truly successful Ontario's Prosperity Agenda requires a collective effort of business, labour, academia, the non-profit sector, community groups, and all our citizens. To propel Ontario into the creative age, we outline four strategic areas for collective action by all Ontarians:

- Harness the creative potential of Ontarians
- Broaden our talent base
- Establish new social safety nets
- Build province-wide geographic advantage.

By undertaking strategic efforts and investments in these four key areas, Ontario can move to the very frontier of global competitiveness, ensure a new era of broad and shared prosperity for all its citizens, and become a model for prosperity for Canada, North America, and the world.

## HARNESS THE CREATIVE POTENTIAL OF ONTARIANS

Right now we have an enormous opportunity. In Ontario and across the world, the wealthiest and most competitive locations are harnessing the creative skills of only a fraction of their workforce and citizens. The great promise of our time is that, for the first time in human history, the logic of economic development and prosperity requires that we harness and develop our full human potential. Economic development requires higher levels of human performance. We propose the following interrelated goals.

### Increase creativity in all jobs

To get there, we must first and foremost increase the creativity content of all our jobs.

For business, that means managing and organizing so workers can contribute and employ their creative thinking skills. Employers must identify opportunities for greater creativity in the jobs they ask people to do. As much as possible, they must base jobs on creativity, not routine.

Workers, too, need to develop their skills and strive to contribute. They must be engaged and identify opportunities for greater creativity in their jobs with their employers – in fact, they should not settle for jobs that are not drawing as much as possible on their creative skills. Labour groups can also play a role by engaging collaboratively in the shift toward harnessing the full capabilities of the workforce. Workers who contribute more are not only more productive, they are more excited and engaged in their work. The result is a triple win – where workers are more engaged, productivity improves for companies, and the prosperity of the province increases.

Government must orient its investments and incentives toward businesses and firms that invest in and cultivate the full range of human potential. It must create a regulatory and business climate that encourages this kind of shift. And it can help by working collaboratively with business, labour, and academics to identify and disseminate best practices in job design for creativity. One option is for the Premier or the Ministers of Economic Development and Labour to host a summit on redesigning jobs for creativity. We strongly urge the province to focus especially on routine-oriented service occupations, which employ the largest number of Ontarians,

and where there is a big need and an opportunity to improve the wages as well as the content of their work.

Ontario can become the world's first jurisdiction to engage in the transformation of the service economy to world-class standards. This would dramatically improve the wages and working conditions of routine-oriented service workers and also improve productivity and prosperity of the province.

### **Be the world's first jurisdiction where creativity-oriented occupations account for half of all jobs**

Currently, in Ontario, 30 percent of our jobs are creativity-oriented, and they account for nearly half (47 percent) of all our wages. These jobs are a key engine of economic growth and prosperity. In some metropolitan areas and foreign jurisdictions, the percentage of the workforce engaged in creativity-oriented jobs currently reaches 40 percent. To realize a competitive advantage for Ontario and ensure broad prosperity for all Ontarians, the province should strive to have more than 50 percent of its employment in creativity-oriented jobs by 2030. This would represent a similar share to that held by industrial manufacturing jobs at the highpoint of the industrial age. By doing so, the province will ensure that it has a powerful engine for economic growth and emerges as the world's leading jurisdiction in the creative economy. But we cannot stop there.

### **Strengthen creativity skills through our education system**

Each one of us must have the opportunity and ability to acquire the core skills required for success in the creative age – analytical skills and social intelligence skills. It is important to remember that analytical skills are broad and are not synonymous with or limited to the science, technology, engineering, and mathematics (STEM) disciplines; and that social intelligence skills are as necessary and as valued, if not more so, than analytical skills. Thus we need to broaden our current higher education focus to include more than the analytical skills of the STEM disciplines.

This presents a significant change for our government and our education system. We made great strides by building a public education system that provides education for all, works well in cities as well as suburbs and rural areas, and prepared our citizens as well as any for work in the industrial age. While we recognize the great achievements of that system, we also recognize that we must develop a broad education system – curricula, subject matter, and teaching styles – that encourages creativity and cultivates both the analytical and social intelligence skills we need to compete at the frontier of the creative age.

### **Market Ontario as a creative province**

The province has extensive and successful marketing efforts. We can expand these to focus on Ontario as the preferred location for creativity-oriented firms. Our priority should be to attract firms and industries that have an above average share of creativity-oriented occupations.

We must also add talent attraction, as well as business attraction, to our marketing efforts. Talented people are the lifeblood of creative industries. Marketing efforts should aim to attract the best and brightest people, as well as the best performing firms and industries to Ontario. We have been doing well here. Just recently the Waterloo-based Perimeter Institute announced that the world-renowned physicist Steven Hawking, among others, would be participants in its programs.

The key to success in the global economy is not simply to export goods and services, but to become a hub in what the University of California at Berkeley's Anna Lee Saxenian calls brain circulation – ensuring we are open to and can attract the best and brightest in the world. By attracting top talent, we improve our ability to attract other bright and talented people.

The current economic situation also provides great opportunity not only to attract global talent, but to develop a niche in attracting back Canadians who are currently living outside Canada. At a minimum, we need to think of these people as ambassador-residents, connecting Toronto and Ontario to the world. The future will be one of more mobility and of top talent living in more than one place. Singapore is discussing the idea of different levels of citizenship, like economic citizens, for those who would be partly based there. Ontario and Canada must be at the forefront of the competition for global talent.

### **Make diversity a cornerstone of economic prosperity**

Openness to diversity is a key driver of performance and prosperity in the creative age. Places that are open and diverse are able to attract a broad range of talent. Lower barriers to entry for talent enable places to tap a fuller and broader range of people and capabilities.

Ontario is one of the most diverse jurisdictions on the planet. The breadth and depth of our immigrant communities give us an edge in the competition for talent and are a key connection to the global world. But it is widely recognized that we need to do more to fully integrate the skills and talents of our immigrants into Ontario's economy. Government, business, labour, and the academic community must do more on this score. What is less recognized and as important is that our immigrant communities represent our key connection to the global economy – giving us inroads into each one of the world's most dynamic, fastest growing, emerging economies. Our province must see these immigrant communities as a key element in our global trade and development strategy.

Our universities provide a substantial advantage here. They are admitting large numbers of students – including advanced graduate and doctoral students – from foreign countries. Foreign students represent a huge potential advantage because they bring skills and energy to our province. But there are currently economic disincentives for Ontario universities to admit foreign students. The Ontario government provides no support to foreign doctoral students, and they are the most expensive students to train. Given that many doctoral students end up staying in Canada following graduation and have the skills and capabilities that are vital to our competitiveness in key fields, Ontario should extend normal domestic doctoral student funding to foreign students. This will ensure that we can compete for the world's best and brightest students.

## **BROADEN OUR TALENT BASE**

The terms of competition and of prosperity have shifted from physical assets to human assets. We need a talent strategy to ensure that we Ontarians are in control of the transformation and use it for our advantage. We must build a talent and education system attuned to the demands of the global creative economy. The province must become the world's leading talent and educational province.

## **Make Ontario the talent province**

Ontario has a world class workforce and world renowned educational institutions. But it is fair to say that we are not an “education jurisdiction” like Massachusetts. Thus we cannot stop there. We must invest dramatically in post secondary education. The educational attainment of our population trails that in our most prosperous peers. Ontario must become the world's first and best talent jurisdiction. This requires greater investments in post secondary education and strategies for increasing participation by our youth in colleges and universities.

To meet the need that 70 percent of new jobs require post secondary education, we must aim to have a 60 percent participation rate among our 18 to 24 year olds. The additional gap will be filled by adults and immigrants returning to post secondary education. As we have seen, about 40 percent of our 18 to 24 year olds are currently in post secondary education. We expect this will reach 50 percent in the next twenty years based on the current momentum. If Ontario is to thrive and prosper in the creative age, we must encourage still more of our high school graduates to pursue post secondary education and create the capacity in our college and university systems for them to do so.

But talent is not just cultivated in schools; it is developed everywhere. We must attune our education system – and extend the boundaries of what we consider education and development – to go beyond our schools.

## **Strengthen our managerial capability**

Management matters. It is not enough simply to boost the number of people in science and technology or in entertainment and the arts. We must combine that with more and better management. Any venture capitalist will tell you they invest in management capabilities and the broad management team – not just in great technology. But even when it comes to arts and culture – management matters. Virtually any band that has really made it, and even many of less successful artists and entertainers, requires great management to be successful. Our own research has shown the importance of management occupations to economic performance. It has also shown that Ontario lags in management compared to peers.

We must do a much better job of developing our managerial capabilities across the board from high-tech and arts and culture enterprises to manufacturing, service, and agriculture. If Ontario businesses are to redesign a significant percentage of jobs for greater creativity, and if we need more innovative business strategies, we need a more capable management cadre. Our research has identified social intelligence skills as important parts of our future success; it has shown the impact of managers on regional prosperity; and other research has shown that Ontario's educational system under produces graduates in management disciplines. Effective, creative managers in the

private and public sectors are critical to Ontario's advantage in the creative age, and we need to ensure our educational institutions are responsive to this challenge. Currently, we produce 45 percent fewer graduates per capita in business education than the United States, yet we actually graduate 28 percent more per capita in science and engineering.

## **ESTABLISH NEW SOCIAL SAFETY NETS**

Ontario and Canada have developed a social safety net system that is among the best in the world and a model for jurisdictions everywhere. We have accessible health care and a high level of social cohesion and social capital. We pride ourselves on our ability to help those who are less fortunate and continue to search for programs and policies that help people advance economically. But our social safety net remains a legacy of the older, industrial age. It provides material support but does little to nurture and develop creative talents.

However, Ontario has taken an important first step in creating a creative age social safety net system with its bold move in 2006 to require young people to keep learning in a classroom, apprenticeship, or workplace training program until they are eighteen. In the creative age, the best safety net we can provide to a would-be high school dropout is the refusal to allow an act that will doom the young citizen to a life of near-certain poverty due to lack of the essential skills for the creative age. We applaud this bold first step and encourage the Province to build on it.

## **Make early childhood development a high priority**

This is the highest payoff investment we can make in our long-run prosperity. As we have seen, early childhood development is key to the full development of human capabilities and talents.

The Perry Pre-School study in the United States is an oft-cited example of the return on investment achievable from early childhood education. It involved weekly home visits with parents and intensive, high quality preschool services for one or two years at a cost of \$19,000 per child. The results in subsequent higher education achievements and lower crime paid back a 9:1 cost-benefit ratio.

Closer to home the Pathways to Education Program has proved to be an effective model for ensuring that young people from high-risk communities stay in school, graduate, and move on to post secondary programs. It is a community-based initiative begun in Toronto but now expanded to other at-risk communities across Ontario and Canada. The long-term benefit to society is \$12 for every dollar invested in Pathways, according to the Boston Consulting Group. We are not prescribing specific approaches for Ontario – but we are confident that the jurisdiction that determines how best to achieve the promise of investing in skills development for at-risk children will have a significant advantage in the creative age.

## **Invest in skills development for recent immigrants**

Immigrants to Canada are highly educated and yet, as a group, recent immigrants are falling behind native-born Canadians in economic achievements. The province has enacted legislation to reduce barriers to regulated professions. But ongoing investments in language training and in skills attainment are required to help recent immigrants be part of the Canadian dream.

## **Consider wage insurance for longer tenure workers**

Wage insurance can help ease the transition that some workers face in our rapidly changing economy – particularly older workers with less transportable skills. At the same time it leaves intact the motivation for unemployed workers to find a new job; in fact, by reducing the sting of lower wages, it encourages them to consider jobs in other sectors where their current skills are not as valuable. In a sense, it subsidizes employers to hire and retrain these workers on the job. This could be funded as a pure insurance program with premiums paid by workers and employers.

## **BUILD PROVINCE-WIDE GEOGRAPHIC ADVANTAGE**

Economic transformation is dividing places and concentrating assets. Ontario is part and parcel of this transformation. It has a large, and prosperous core or mega-region around Toronto that stretches from Kitchener-Waterloo to the west, down through Buffalo and Rochester in the United States, over to Ottawa and eastward to Montreal. But there are other places that are becoming more disconnected and isolated – older industrial centres, rural places, and inner city neighbourhoods. To ensure prosperity for all Ontarians, the province needs to accomplish two things:

### **Make the mega-region as strong as it can be**

The mega-region is our main source of connection to the world economy and main competitive asset. The stronger it gets, the stronger the province will be in the global competition for talent, creativity, investment, and jobs. To do so, we must encourage density and concentrated development and improve our infrastructure broadly to increase the velocity of the movement of goods, people, and ideas.

### **Invest in connectivity**

We must also develop strategies and invest in infrastructure that can better connect currently disconnected places and communities – older industrial centres, far flung and geographically dispersed rural communities, and inner city neighbourhoods – to that growing core.

With its limitations on new development and requirements for reuse of existing and infill property, “Places to Grow,” the province’s development plan for the Greater Golden Horseshoe is a great example and a good first start of the intensification of land-use and resulting infrastructure development that we are recommending. “Places to Grow” can serve as a model that can be “pumped up” and implemented across the province.

There are many options to connecting places by improving infrastructure – from investments in new subway lines and high speed rail to congestion pricing – and while our research has examined many of these, we propose a different kind of goal. The key lies not in the specific type of infrastructure that we build, but in how we increase our scale and density while improving the movement of goods, people, and ideas.

The province should set stretch goals to reduce the time it takes to move goods, people, and ideas. We spend too much unproductive time sitting in cars, buses, subways, and trains. Commuting time is wasted time. If we reduce it, we can dramatically increase productivity and prosperity in our province.

Our province has an unprecedented opportunity to embrace the future, to improve its ability to compete in the global economy, to engage the full talents and capabilities of its citizens, and to guarantee long term, shared and sustained prosperity for all its citizens. By acting boldly in these four areas – harnessing Ontarians’ creativity, investing in talent, establishing a new social safety net, and building our province’s geographic advantage – the province can guarantee its future and become a model for Canada, North America, and the world.

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