

## Chapter 4

# The Occupations, Skills, and Credentials Employers Need

### Chapter Summary

- ◆ Skills shortages affect many sectors of Ontario's economy, including those that account for almost 40 per cent of employment: manufacturing; health care; professional, scientific, and technical services; and financial industries.
- ◆ To fill their skills needs, respondents to the Conference Board's Ontario Employer Skills Survey said that they will be looking for employees with two- or three-year college diplomas (57 per cent), four-year degrees (44 per cent), and trades training (41 per cent).
- ◆ The fields of study that will be in highest demand include science, engineering, and technology; and management, business, and finance.

Ontario faces skills challenges that have had negative impacts on the economy, businesses, and individuals. Given underlying demographic and economic trends driving skills gaps, the impacts will worsen without clear and concerted action by a range of stakeholders. But where is action needed most? Which occupations are experiencing the greatest challenges? In which parts of the province are the challenges most

pressing? And what kinds of skills, training, and credentials are required to address the problems? This chapter takes a closer look at these questions in order to provide a stronger and clearer foundation for a discussion of targeted strategies to address Ontario's skills challenge.

### OCCUPATIONS AND SKILLS IN DEMAND— A CURRENT SNAPSHOT

At an economy-wide level, the evidence for current *labour* shortages is weak. Indeed, recent data show that, on average, Ontario has eight people unemployed for every job vacancy. However, labour market statistics at the sector and occupational levels reveal a more nuanced picture of labour tightening in particular sectors. (See Chart 6.)

The health care and social assistance sector in Ontario has an unemployment-to-vacancy ratio of only 1.2—the smallest of any sector and clear evidence of a very tight labour market.<sup>1</sup> Moreover, this reflects a decline from the already low ratio of 1.5 recorded in 2011. These results are in line with observations that health-related occupations will be in high demand as Ontario's population

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1 Unemployment-to-job vacancy ratios—the number of people actively looking for one job opening in a given industry—are tracked by Statistics Canada.

ages.<sup>2</sup> Other sectors exhibiting low unemployment-to-job vacancy ratios include finance and insurance, wholesale trade, and transportation and warehousing.

Nearly every sector has experienced some labour tightening over the past year. Occupations in the arts, entertainment, and recreation sector, for example, had a high ratio of 8 unemployed individuals per job vacancy in 2012, but this represents an almost 50 per cent reduction in the ratio since 2011, when it sat at 15. Similarly, manufacturing had the second-highest at just over 6, but this is down from a ratio of over 8 in 2011.

Tal's analysis (see Chapter 2) corroborates the evidence that skills shortages are present in economically important sectors of the economy. Among the 25 occupations with skills shortages that constitute 21 per cent of total employment in Canada, Tal found the highest skills shortages in "health-related occupations, the mining industry, advanced manufacturing, and business services."<sup>3</sup> (See box "25 Occupations Showing Signs of Skills Shortages in Canada.")

**We see signs of skills gaps in a variety of sectors, including manufacturing; health care; professional, scientific, and technical services; and financial industries.**

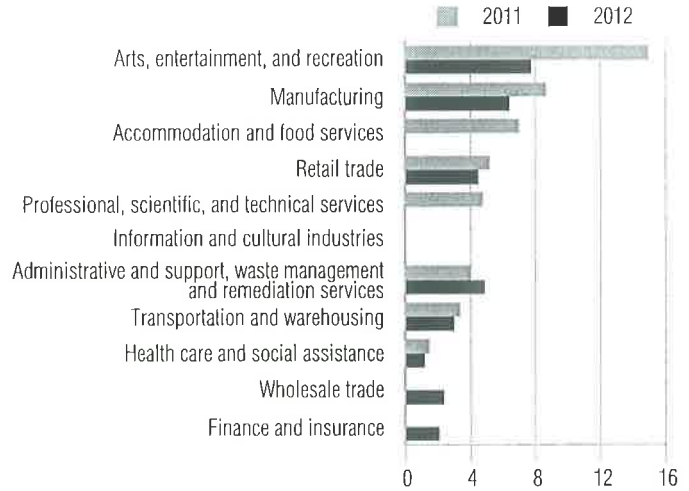
Putting the evidence together, we see signs of skills gaps in a wide variety of sectors in Ontario. However, weak labour market information makes it very difficult to quantify precisely how serious the skills gaps are in these areas. Improving systems of labour market information is therefore a priority for governments. Still, skills gaps are evident in sectors that account for 38 per cent of Ontario employment: manufacturing; health care; professional, scientific, and technical services; and financial industries.<sup>4</sup> (See box "Skills Gaps in Major Sectors.")

2 Statistics Canada, *Job Vacancies, Three-Month Average Ending in December 2012*.

3 Tal, *The Haves and Have Nots*, 2.

4 Ministry of Training, Colleges, and Universities, *Ontario Labour Market Statistics for January 2012*, 8.

**Chart 6**  
Ontario's Unemployment-to-Job Vacancy Ratios by Sector  
(ratio of unemployed to job vacancies, per cent)



Note: Missing bars indicate areas where data are considered too unreliable to be published.

Sources: Statistics Canada, CANSIM Table 284-0004; The Conference Board of Canada.

**25 Occupations Showing Signs of Skills Shortages in Canada**

- ◆ Managers in engineering, architecture, science, and information systems
- ◆ Managers in health, education, and social and community services
- ◆ Managers in construction and transportation
- ◆ Auditors, accountants, and investment professionals
- ◆ Human resources and business service professionals
- ◆ Professional occupations in natural and applied sciences
- ◆ Physical science professionals
- ◆ Life science professionals
- ◆ Civil, mechanical, electrical, and chemical engineers
- ◆ Other engineers
- ◆ Professional occupations in health
- ◆ Physicians, dentists, and veterinarians
- ◆ Optometrists, chiropractors, and other health diagnosing and treating professionals
- ◆ Pharmacists, dietitians, and nutritionists
- ◆ Therapy and assessment professionals
- ◆ Nurse supervisors and registered nurses
- ◆ Technical and related occupations in health
- ◆ Medical technologists and technicians (except dental health)
- ◆ Technical occupations in dental health care
- ◆ Other technical occupations in health care (except dental)
- ◆ Psychologists, social workers, counsellors, clergy, and probation officers
- ◆ Supervisors in mining, oil, and gas
- ◆ Underground miners, oil and gas drillers, and related workers
- ◆ Supervisors in manufacturing
- ◆ Supervisors in processing occupations

Source: Tal, *The Haves and Have Nots*, 4.

### Skills Gaps in Major Sectors

Economic and labour market statistics point to skills gaps in four sectors that together make up 38 per cent of Ontario employment: manufacturing; health care; professional, scientific, and technical services; and financial industries.<sup>1</sup> The nature of skills issues in these sectors is briefly explored below.

#### MANUFACTURING

Manufacturing is Ontario's second-largest employer, employing about 781,000 people.<sup>2</sup> Since the recession, it has become common to think about manufacturing as a sector with high unemployment. Unemployment persists, but largely in areas of lower-skilled manufacturing. In areas of advanced and emerging manufacturing, there are skills shortages. A labour market study conducted by a Southwestern Ontario workforce training board shows that skills shortages are threatening business growth in a wide range of manufacturing sectors, including "automotive; aerospace; communications and electronics; along with emerging opportunities in ship-building; mining; and oil and gas production."<sup>3</sup>

#### HEALTH CARE

The health care and social assistance sector is Ontario's third-largest employer, employing about 758,000 people.<sup>4</sup> The sector shows signs of skills gaps in some areas. A 2012 report by the Ontario Ministry of Labour notes that health care employers "face recruitment and retention challenges, an aging workforce, a shortage of skilled professional staff, and an increase in casual and part-time workforce."<sup>5</sup> Some estimate there is already a shortfall of nurses, masked only by "delayed retirements and heavy workloads"<sup>6</sup>—a shortage that is worse in rural and northern areas.<sup>7</sup> A labour market report by Dietitians of Canada to the Senate Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities notes that "[d]ietitians have reported many difficult-to-fill vacancies, especially in rural and remote areas."<sup>8</sup>

#### PROFESSIONAL, SCIENTIFIC, AND TECHNICAL SERVICES

The professional, scientific, and technical services sector is Ontario's fourth-largest employer, employing about 567,000 people.<sup>9</sup> According to Industry Canada, the sector includes a wide range of industries whose production processes "are almost wholly dependent on worker skills" and that are primarily engaged in selling expertise.<sup>10</sup> These include legal services, architectural and engineering services, scientific and technical consulting, advertising services, and others.<sup>11</sup> Given the high degree of skills and education needed for these occupations, it is no surprise that many are projected to face shortages in the coming years. For example, a recent report reveals a shortage of experienced engineers that is becoming "more serious" in Ontario, particularly in the areas of aerospace and construction.<sup>12</sup>

#### FINANCIAL INDUSTRIES

The financial industries sector (finance, insurance, real estate, and leasing) is Ontario's sixth largest employer, employing about 480,000 people.<sup>13</sup> Employers in this sector already experience skills gaps in a number of areas, with the greatest shortages in areas that "require significant quantitative sales capabilities—e.g., account management, accounting and actuarial, credit risk and compliance, financial analysts/planners/advisors and technical specialists."<sup>14</sup> One financial institution human resources director observed that "there just isn't enough talent to meet our current demand. Key positions are incredibly hard to fill—we currently have a 37 percent vacancy [rate] in key roles and these have been vacant for a long time."<sup>15</sup>

1 Ministry of Training, Colleges, and Universities, *Ontario Labour Market Statistics for January 2012*, 8.

2 Ibid., 8.

3 Southwestern Ontario, *Report Indicates Region's Manufacturing Sector Faces Skills Shortage*.

4 Ministry of Training, Colleges, and Universities, *Ontario Labour Market Statistics for January 2012*, 8.

5 Ministry of Labour, *Health Care Sector Plan 2012–13*, 4.

6 Canadian Federation of Nurses Unions, *The Nursing Workforce*, 3.

7 Ibid., 3.

8 Dietitians of Canada, *Fixing the Skills Gap*, 2.

9 Ministry of Training, Colleges, and Universities, *Ontario Labour Market Statistics for January 2012*, 8.

10 Industry Canada, *Canadian Industry Statistics*.

11 Ibid.

12 Klein, *Engineering Shortages*.

13 Ministry of Training, Colleges, and Universities, *Ontario Labour Market Statistics for January 2012*, 8.

14 Deloitte, *Talent Matters*, 21.

15 Ibid., 21. Toronto's financial industry alone will require about 1,980 new entrants into the workforce each year. At the same time, the industry faces a coming "exodus" of retiring baby boomers of about 2,500 to 4,500 per year.

## OCCUPATIONS AND SKILLS IN DEMAND— THE LOOMING SHORTAGES

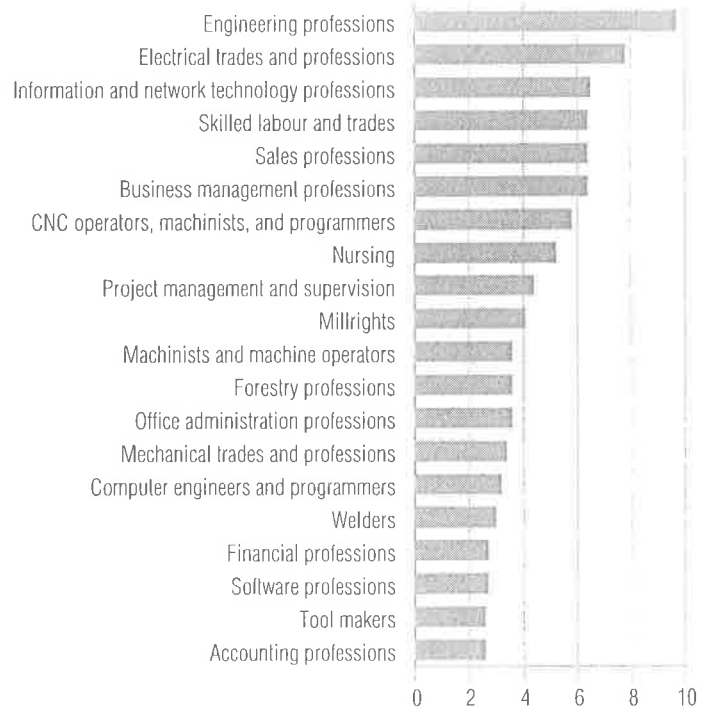
The previous section provides a current snapshot of skills shortages in specific sectors as well as a sense of trends to date. But the critical question facing Ontario employers is where the skills gaps will be in the years ahead. Projecting future skills gaps and needs is critical, given that many of the strategies required to address them—such as changes in educational paths—produce results only after a lag of two to four years or more. So what are the occupations and skills that employers will need in the future?

In our Ontario Employer Skills Survey, we asked organizations to specify which occupations they expect to have difficulty filling in the coming years. The most frequently cited occupations are listed in Chart 7. Nearly 10 per cent of employers anticipate that engineering occupations will be the most difficult to fill, followed by electrical trades and professions, information and network technology professions, and skilled labour and trades in general.

The results of our survey show where many Ontario employers anticipate difficulties, but whether a skills gap will exist in any given area depends also on the supply of skilled labour in the demanded areas. Moreover, an employer's location in the province may affect their access to the skilled labour they need. For example, several employers located near the Greater Toronto Area described challenges with relocating and retaining software developers from smaller communities—a profession that is projected to be in surplus at the national level. In other words, even if skills supply exceeds actual demand in overall terms, local skills gaps may persist.

Other labour market information sheds light on projected occupational shortages (and surpluses). HRSDC's Canadian Occupational Projection System (COPS) provides an important complement to employers' perspectives.<sup>5</sup> Although the results are for Canada as a whole, many of the trends apply to Ontario. Table 3 provides a breakdown of anticipated shortages by skills type and

**Chart 7**  
Top 20 Occupations Employers Expect to have Difficulty Filling  
(percentage of respondents)



Source: The Conference Board of Canada.

occupations, while Table 4 shows anticipated surpluses. On the whole, skills gaps are projected in many high-skill occupations that require a post-secondary credential<sup>6</sup> and surpluses are projected in areas of low-skill occupations that require less than a post-secondary credential.<sup>7</sup>

## EDUCATION AND TRAINING REQUIREMENTS

The previous section considered which occupations are projected to be in higher demand, from both an employer and an economic perspective. Proactively addressing skills gaps requires tackling the challenge at the level of post-secondary education. Based on their expectations of which occupations and skills they will need in the

5 Human Resources and Skills Development Canada, *Canadian Occupational Projection System (COPS)*.

6 Human Resources and Skills Development Canada, *Canadian Occupational Projection System 2011 Projections*, 11.

7 *Ibid.*, 15.

**Skills Snapshot #1****Industry:** Mining**Skilled Occupational Needs:** Mine engineers and mine ventilation specialists

**Contributing Factors:** The work is becoming more specialized and educational requirements have increased. Many of the workers who entered the industry when they were 18 years old—when all that was required was a high school diploma—are now nearing retirement age and taking a lot of corporate knowledge with them. There is also much competition for these skills from Alberta and the oil sands.

**Skills Strategies:**

- ◆ Four-month summer co-op placements that are also treated as an informal probationary period with the objective of retaining those students who perform well.
- ◆ Apprenticeships.
- ◆ Working with recruitment agencies and head hunters
- ◆ Extensive recruitment activities, such as billboard, radio, and newspaper ads.
- ◆ Job fairs.
- ◆ Offering retention bonuses and other incentives to stay with the company.

**Impacts:** Skills gaps will make it difficult for companies to fulfill projects and meet deadlines. This situation also makes it difficult to do any longer-term planning, as companies become consumed with the day-to-day and just trying to stay afloat. Persistent gaps may also force companies to increasingly look for skills outside of Canada.

Source: The Conference Board of Canada.

future, what are Ontario employers saying about the specific educational credentials they will look for, and in what subjects? Their responses, summarized as follows, can help to inform the choices that are made by Ontario youth, parents, and education policy-makers.

**EMPLOYER PERSPECTIVES**

Employers will have a significant need for employees with two- or three-year college diplomas, followed by those with four-year degrees and those with trades training. In total:

- ◆ 57 per cent of employers surveyed are looking for employees with two- or three-year college diplomas;
- ◆ 44 per cent will require employees with four-year degrees—usually, though not exclusively, from universities;
- ◆ 41 per cent indicated that they need employees with trades training.

Employer responses varied between regions of the province, though only in a couple of cases is the variation especially significant. (See Chart 8.) One exception is that employers from Greater Toronto are almost 10 per cent more likely to say they will require four-year degree credentials than those in other parts of the province and are less likely than other employers to say that they will require employees with trades training. Still, about a third of GTA employers indicate they will need employees with trades certification.

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**Employers will have a significant need for employees with two- or three-year college diplomas (57 per cent), followed by those with four-year degrees (44 per cent) and those with trades training (41 per cent).**

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More significant differences emerge when results are examined by employer size. (See Chart 9.) Large firms (500+ employees) are less likely to need graduates with trades training—though a third of them said they will need some.<sup>8</sup> By contrast, large firms are somewhat more likely than others to need employees with two- or three-year college diplomas, and much more likely to need employees with four-year degrees—in fact, the larger the firm size, the greater the interest in four-year degree credentials. Smaller firms (1–19 employees) have the greatest need for two- or three-year college diplomas, followed by trades and four-year degrees.

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<sup>8</sup> Although the largest firms are less likely to say they require trades certifications, their large size means that the absolute number of tradespeople required by large firms may still be very high.

**Table 3**  
Projected Canadian Occupational Shortages

Skills type	Occupations in shortage
Business, finance, and administration occupations	<ul style="list-style-type: none"> <li>◆ Human resources and business service professionals</li> <li>◆ Administrative and regulatory occupations</li> </ul>
Natural and applied sciences and related occupations	<ul style="list-style-type: none"> <li>◆ Other engineers</li> <li>◆ Architects, urban planners, and land surveyors</li> <li>◆ Mathematicians, statisticians, and actuaries</li> </ul>
Health occupations	<ul style="list-style-type: none"> <li>◆ Managers in health, education, social, and community services</li> <li>◆ Physicians, dentists, and veterinarians</li> <li>◆ Optometrists, chiropractors, and other health diagnosing and treating professionals</li> <li>◆ Therapy and assessment professionals</li> <li>◆ Nurse supervisors and registered nurses</li> <li>◆ Medical technologists and technicians</li> <li>◆ Assisting occupations in support of health services</li> </ul>
Occupations in social science, education, government service, and religion	<ul style="list-style-type: none"> <li>◆ Judges, lawyers, and Quebec notaries</li> <li>◆ College and other vocational instructors</li> <li>◆ Policy and program officers, researchers, and consultants</li> </ul>
Sales and service occupations	<ul style="list-style-type: none"> <li>◆ Managers in protective services</li> <li>◆ Insurance and real estate sales occupations and buyers</li> <li>◆ Police officers and firefighters</li> <li>◆ Other occupations in protective service</li> </ul>
Trades transport and equipment operators and related occupations	<ul style="list-style-type: none"> <li>◆ Managers in construction and transportation</li> </ul>
Occupations unique to primary industry	<ul style="list-style-type: none"> <li>◆ Supervisors in logging and forestry</li> <li>◆ Supervisors in mining, oil, and gas</li> <li>◆ Contractors, operators, and supervisors in agriculture, horticulture, and aquaculture</li> </ul>

Source: Human Resources and Skills Development Canada, *Canadian Occupational Projection System (COPS)*.

Credential requirements vary significantly across and within industry sectors. (See Chart 10.) In some sectors—such as construction and manufacturing—employers have greater need for trades certificate holders; others seek more two- to three-year diplomas (e.g., accommodation and food services; arts, entertainment, and recreation) or four-year degrees (e.g., public administration; health care, and social assistance). Nevertheless, every industry sector requires a mix of employees with trades certification, diplomas, and/or degrees.

### SUBJECT AREAS IN DEMAND

Among those employers who indicated a need for trades, the greatest demand is in the areas of construction and technology, with fewer indicating a need for trades in business and hospitality (See Chart 11.)<sup>9</sup> Demand for technology-based trades shows strong correlation with firm size, with large firms about 20 per cent more likely

<sup>9</sup> This may reflect, in part, the fact that there are fewer trades in the areas of business and hospitality than in construction and technology. Most of these are in areas relating to food preparation, such as cook, retail meat cutter, and baker. See Ontario College of Trades, *Trades in Ontario*.

**Table 4**  
Projected Canadian Occupational Surpluses

Skills type	Occupations in surplus
Business, finance, and administration occupations	<ul style="list-style-type: none"> <li>◆ Managers in communication</li> <li>◆ Secretaries, recorders and transcriptionists</li> <li>◆ Clerical occupations, general office skills</li> <li>◆ Office equipment operators</li> <li>◆ Library, correspondence, and related information clerks</li> <li>◆ Recording, scheduling, and distributing occupations</li> </ul>
Natural and applied sciences and related occupations	<ul style="list-style-type: none"> <li>◆ Computer and information systems professionals</li> <li>◆ Technical occupations in physical sciences</li> </ul>
Occupations in art, culture, recreation, and sport	<ul style="list-style-type: none"> <li>◆ Managers in art, culture, recreation, and sport</li> <li>◆ Technical occupations in libraries, archives, museums, and art galleries</li> <li>◆ Athletes, coaches, referees, and related occupations</li> </ul>
Sales and service occupations	<ul style="list-style-type: none"> <li>◆ Chefs and cooks</li> <li>◆ Retail salespersons</li> <li>◆ Occupations in travel and accommodations</li> <li>◆ Occupations in food and beverage service</li> <li>◆ Cashiers</li> <li>◆ Other sales and related occupations</li> <li>◆ Food counter attendants, kitchen helpers, and related occupations</li> <li>◆ Security guards and related occupations</li> <li>◆ Other elemental service occupations</li> </ul>
Trades, transport and equipment operators, and related occupations	<ul style="list-style-type: none"> <li>◆ Facility operation and maintenance managers</li> <li>◆ Machinists and related occupations</li> <li>◆ Metal forming, shaping, and erecting trades</li> <li>◆ Carpenters and cabinetmakers</li> <li>◆ Masonry and plastering trades</li> <li>◆ Other construction trades</li> <li>◆ Upholsterers, tailors, shoe repairers, jewellers, and related occupations</li> <li>◆ Heavy equipment operators</li> <li>◆ Other transport equipment operators and related workers</li> <li>◆ Other installers, repairers, and servicers</li> <li>◆ Longshore workers and material handlers</li> <li>◆ Trades helpers and labourers</li> <li>◆ Public works and other labourers</li> </ul>
Occupations unique to primary industry	<ul style="list-style-type: none"> <li>◆ Fishing vessel masters and skippers</li> <li>◆ Logging and forestry workers</li> <li>◆ Agriculture and horticulture workers</li> <li>◆ Other fishing and trapping occupations</li> <li>◆ Primary production labourers</li> </ul>

(continued ...)

**Table 4 (cont'd)**  
Projected Canadian Occupational Surpluses

Skills type	Occupations in surplus
Occupations unique to processing, manufacturing, and utilities	<ul style="list-style-type: none"> <li>◆ Supervisors, assembly and fabrication</li> <li>◆ Central control and process operators in manufacturing and processing</li> <li>◆ Machine operators and related workers in metal and mineral products processing</li> <li>◆ Machine operators and related workers in pulp and paper production</li> <li>◆ Machine operators and related workers in textile processing</li> <li>◆ Machine operators and related workers in food, beverage, and tobacco processing</li> <li>◆ Printing machine operators and related occupations</li> <li>◆ Mechanical, electrical, and electronics assemblers</li> <li>◆ Other assembly and related occupations</li> <li>◆ Machining, metalworking, woodworking, and related machine operators</li> </ul>

Source: Human Resources and Skills Development Canada, *Canadian Occupational Projection System (COPS)*.

**Skills Snapshot #2**

**Industry:** Finance and Insurance

**Skilled Occupational Needs:** Independent financial advisors

**Contributing Factors:** Professional standards and expectations have increased for the profession, placing a greater emphasis on formal education and certification.

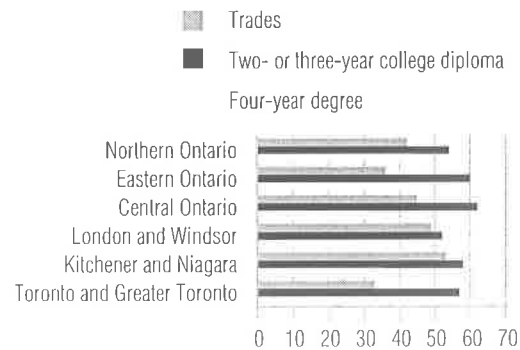
**Skills Strategies:**

- ◆ Succession planning by matching up senior advisors nearing retirement with new advisors just entering the profession.
- ◆ Strategic recruitment by marketing this profession as a second-career option.
- ◆ Participating in a university job fair that also provides a matching opportunity for students to go to the workplace for one day a week for three months. Students keep a journal on what they learned, submit a final report, and are given a course credit.
- ◆ Talking directly to students at universities and colleges about career opportunities and what they need to start doing now to set them on the path to being a successful financial advisor.

**Impacts:** There will be many lost opportunities, as retiring senior advisors will be unable to transfer their client base to new advisors.

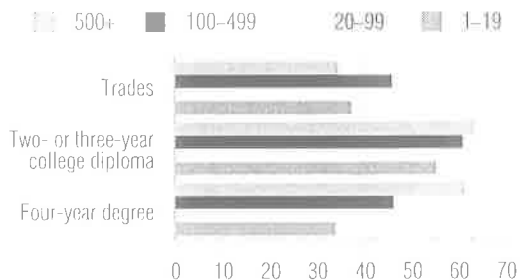
Source: The Conference Board of Canada.

**Chart 8**  
Ontario Employer Credential Needs by Region  
(percentage of respondents)



Source: The Conference Board of Canada.

**Chart 9**  
Ontario Employer Credential Needs by Firm Size  
(percentage of respondents)



Source: The Conference Board of Canada.



**Skills Snapshot #3**

**Industry:** Wholesale Trade

**Skilled Occupational Needs:** Business analysts

**Contributing Factors:** The work is becoming more complex and diverse across companies, making it difficult to find people with all of the skills needed.

**Skills Strategies:**

- ◆ Employing consultants for short-term projects.
- ◆ Focusing more on transferrable skills rather than previous work experience.
- ◆ Participating in university internships.
- ◆ Introducing new recruitment tools to support a more rigorous screening process (for example, candidates must do case studies that they then present to senior company executives).

**Impacts:** There have been missed opportunities to better understand numbers and make better-informed decisions. In some cases, deliverables have been delayed, impacting overall client satisfaction.

Source: The Conference Board of Canada.

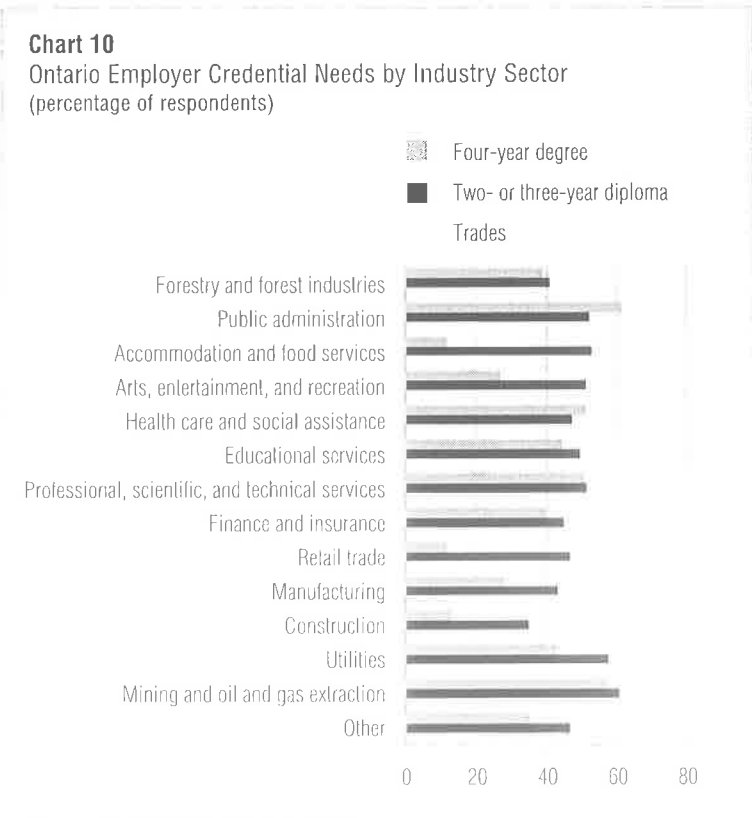


than small firms to need trades credentials in technology. Construction trades, on the other hand, are in greatest demand among the smallest category of firms.

Among employers seeking two- or three-year diplomas, most report the greatest need for diplomas in engineering and technology, except for the smallest firms, which most need diploma-holders in business, finance, and administration. The next highest need in the largest firms is for diplomas in business, finance, and administration; for firms in the second- and third-largest categories, it is for diplomas in business, finance, and administration, or in professions and trades. (See Chart 12.)

Among firms requiring four-year degree-holders, a majority of firms of all sizes anticipate demand for degrees in science and technology, followed by degrees in business. (See Chart 13.) Only the smallest firms differ, indicating a slightly greater need for degrees in business than in science and technology. By contrast, graduates with liberal arts degrees (and to a somewhat lesser extent, social sciences degrees) are in demand by only a handful of those employers surveyed. Less than 10 per cent of large firms and about 5 per cent of firms with between 100 and 499 employees project a need for individuals with liberal arts degrees.

On the whole, these findings agree with labour market analysis of skills gaps considered at the beginning of the chapter: Ontario faces skills gaps in important economic



sectors such as advanced manufacturing and financial services, which is reflected by employer demands for credentials in the areas of science, engineering, and technology; and business and financial professions. The relative lack of demand in employer survey responses for qualifications in health and social assistance is explained by the fact that most respondents were private sector entities, with only a few representing health-related organizations.

### BEYOND CREDENTIALS—ESSENTIAL AND INNOVATION SKILLS

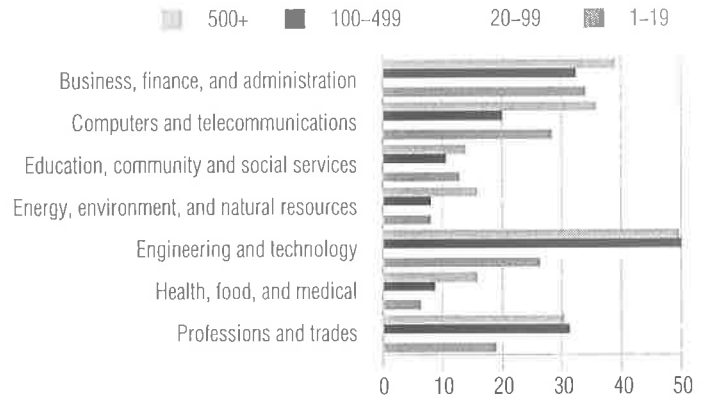
Looking further down the road, there is no way of knowing precisely what occupations, skills, and knowledge will be required to build the businesses of the future. The reality is that the creation of new job categories (and the specific skills needed for those jobs) often outpaces attempts to understand and classify them. A 2003 report from the U.S. Council of Economic Advisors, for example, observed that “a quarter of today’s workforce is in jobs that were not even listed among the Census Bureau’s Occupation codes in 1967, and technological change has only accelerated since then.”<sup>10</sup>

**The reality is that the creation of new job categories (and the specific skills needed for those jobs) often outpaces attempts to understand and classify them.**

Even some of Canada’s traditional industries, such as forestry, are evolving—and with that come changes in the skills and education required to work in these fields. One interviewee noted that the growth of occupations in urban forestry has created many different skills requirements than are needed for traditional forestry, which have not yet become well-represented in the education

10 Council of Economic Advisors, *Preparing the Workers of Today*, 22.

**Chart 12**  
Ontario Employer Diploma Needs by Firm Size  
(percentage of respondents)



Source: The Conference Board of Canada.

#### Skills Snapshot #4

**Industry:** Public Administration—Engineering and Construction Services Division

**Skilled Occupational Needs:** Civil engineering technologists

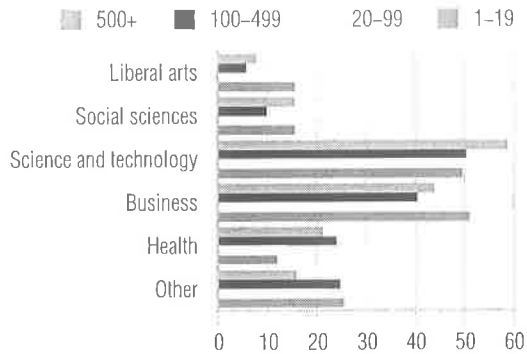
**Contributing Factors:** Skills needs are changing with technological developments. Retirements will have a significant impact at the senior and management levels. Retention is a challenge because incentives are limited, which makes it tough to compete with private firms.

**Skills Strategies:**

- ◆ Hiring summer students from colleges and universities.
- ◆ Reducing the technologist workforce and increasing the project management workforce to allow more contracting out of work.
- ◆ Introducing new tools, like Skype, into the interview process to expand the pool of candidates.
- ◆ Broadening the recruitment strategy to advertise nationally and be more strategic on communicating the opportunities with the organization.

**Impacts:** Contracting more work out will drive up costs, to both the organization and to taxpayers.

Source: The Conference Board of Canada.

**Chart 13**Ontario Employer Degree Needs by Firm Size  
(percentage of respondents)

Source: The Conference Board of Canada.

**Skills Snapshot #5****Industry:** Construction**Skilled Occupational Needs:** Architectural engineers**Contributing Factors:** The industry has become more technically oriented and less experience-based. This is due, in part, to new technologies, but also to an increase in the size and complexity of the types of work clients want done.**Skills Strategies:**

- ♦ Co-op placements for college and high school students.
- ♦ Cross-training of existing employees who express an interest in learning other aspects of the business.
- ♦ Joint ventures with other firms to complement each others' skill sets.

**Impacts:** Business efficiency suffers. Senior staff are working on too many projects at once and junior employees are being given too much responsibility. The number of projects is not decreasing, but the ability to meet demands will continue to decrease, opening the door to greater foreign competition.

Source: The Conference Board of Canada.

system.<sup>11</sup> Given the pace of technological change, cultural and demographic shifts, and globalization, the job market will introduce many more surprises over the coming decade.

Because we cannot predict exactly what skills will be required in the future, it is important that the next generation of job seekers possess a broad range of skills and competencies that supports their ability to think, learn, communicate, collaborate, and innovate—in addition to the specific, task-related skills that have an immediate function in the labour market.

**ESSENTIAL SKILLS**

Essential skills are those that “provide the foundation for learning all other skills and enable people to evolve with their jobs and adapt to workplace change.”<sup>12</sup> Indeed, these skills are basic to an employee’s ability to function effectively in the workplace and provide a foundation for continuous learning. The Conference Board has conducted previous work that looks at employability skills and their main characteristics.<sup>13</sup>

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**It is important that the next generation possess a broad range of skills that supports their ability to think, learn, communicate, collaborate, and innovate.**

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Unfortunately, the Ontario employers surveyed noted that there are essential skills deficits among even their current employees. (See Chart 14.) Over 70 per cent said that there are gaps in critical thinking and problem-solving skills. Nearly half also said that they are seeing insufficient oral communication (46 per cent) and literacy skills (42 per cent) in the workforce. Even the least selected area—numeracy skills—still reveals that more than one in five (22 per cent) employers are seeing deficits. From employers’ perspectives, then, there is clearly a need for improved essential skills in the workforce.

Although it is not a guarantee, research shows that individuals with some post-secondary education are more likely to possess essential skills than others.<sup>14</sup> Still, as a representative of an engineering firm noted, it is

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11 Interview conducted by the Conference Board.

12 ABC Life Literacy Canada, *9 Essential Skills*.

13 See The Conference Board of Canada, *Employability Skills 2000+*.

14 Council of Economic Advisors, *Preparing the Workers of Today*, 11.

common to attend campus career events and not find individuals with the communication skills the firm requires—even among highly educated engineers. Although the students are very bright, he observes, many were able to get through high school and university focusing entirely on technical credits, to the detriment of other employability skills or essential skills. As such, he notes, “they have a *top-sided skill set*.”

A representative of a telecommunications sales firm noted that since it is impossible for anyone to understand their custom sales software before being trained on it, it is important that new hires have not only basic computer skills, but also employability skills and attitudes such as an “open mind” and the “ability to learn.” Given that individuals often move between jobs, and that the skills involved in performing a job are often specialized within a firm, the “ability to learn” will be at least as important as what is learned in any given post-secondary program.

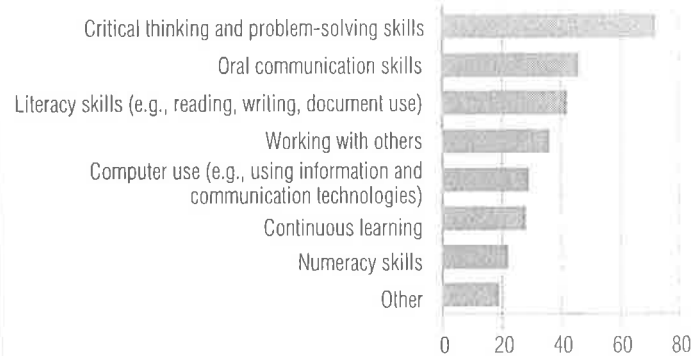
### INNOVATION AND COMMERCIALIZATION SKILLS

Many businesses also need employees with innovation skills to contribute to organizational performance and growth. Having employees with innovation skills is vitally important to organizations looking to develop and implement new and improved products, processes, and services. Indeed, the Conference Board’s Centre for Business Innovation 2012 industry survey revealed that about 40 per cent of firms view “employees’ skills, attitudes, and behaviours” as a “critical competitive attribute” for innovation.<sup>15</sup> In particular, innovating firms will require a mix of employees with *innovation skills* in a range of areas, including:

- ♦ creativity, problem solving, and continuous improvement;
- ♦ risk-assessment and risk-taking;
- ♦ relationship-building and communication;
- ♦ implementation.

15 See The Conference Board of Canada, *Innovation Skills Profile 2.0*.

**Chart 14**  
Essential Skills Gaps  
(percentage of respondents)



Source: The Conference Board of Canada.

Additionally, firms require employees with a range of *commercialization skills* that ensure that ideas are taken all the way to implementation, including:

- ♦ business management;
- ♦ capital-raising;
- ♦ collaboration and networking;
- ♦ sales and marketing.<sup>16</sup>

Having the right skills is vitally important to achieving innovation both in products and processes. Unfortunately, many firms in Ontario, Canada, and elsewhere report serious innovation skills gaps and negative consequences resulting from these gaps. A lack of skills is a detriment to innovative capacity, in almost equal measure, across organizations of all sizes. (See Table 5.) In fact, in firms of all sizes, lack of skills is a barrier to between a fifth and a quarter of all firms, and the second or third most critical barrier to innovation.

16 Ibid.

**Table 5**  
Barriers to Innovation  
(percentage of respondents)

	Large	Medium	Small
Uncertainty and risk	Insignificant	44.4	35.0
Lack of skills	19.7	26.7	26.3
Internal financing	Insignificant	22.2	22.1
Market size	Insignificant	22.2	16.0
External financing	Insignificant	18.7	15.2
Regulatory issues	20.2	27.8	13.8
Agreements with external collaborators	Insignificant	8.7	10.8
Intellectual property	10.5	3.2	4.2
Government competition policy	3.6	3.9	4.0

Source: Government of Canada, *Business Innovation and Strategy*, 59.

### Skills Snapshot #6

**Industry:** Utilities

**Skilled Occupational Needs:** Electrical and electronics engineers

**Contributing Factors:** Changes in technology demand new skills, including IT skills. Many retirements are pending even as the organization is restricted in its ability to hire.

**Skills Strategies:**

- ◆ Co-op placements with college students.
- ◆ Working directly with a local college to evaluate its courses and make recommendations on changes to course content that will help co-op students and graduates be more workplace-ready.

**Impacts:** Firms will have to learn how to do more with fewer skilled, qualified people, which may compromise the quality of work and overall workplace morale.

Source: The Conference Board of Canada.

## CONCLUSION

Ontario faces looming occupational and skills gaps in major sectors of its economy, including manufacturing; health care; professional, scientific, and technical services; and financial industries. Reflecting this, employers anticipate a greater need for post-secondary credentials in the areas of science, engineering, and technology, as well as those relating to business and finance. The larger the firm, the more likely the requirement for individuals with four-year degrees—however, firms of all sizes report a greater need for two- or three-year college diplomas than for four-year degrees. At the same

time, trades in the areas of construction and technology remain in high demand. Looking beyond credentials, employers also have a greater need for employability skills, essential skills, and innovation and commercialization skills. These skill sets power organizational performance and growth and provide individuals with the broad competencies needed to succeed across a range of occupations.

Having considered where employers experience skills needs, what strategies are being adopted to address the challenges? What else can be done? The next two chapters consider these questions.