Closing Canada's
Big Data Talent Gap

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INFORMATION TECHNOLOGY ASSOCIATION OF CANADA

ACTI
ASSOCIATION CANADIENNE DES TECHNOLOGIES DE L'INFORMATION

CIO
ASSOCIATION OF CANADA

TMX

sas

Executive Summary

Big Data and Analytics[1] are under pressure. Bold promises have been made: exceptional customer insights; better decision-making; improved productivity and performance; and product and service innovation. Positive public and social outcomes have been proposed: improved health care, social services, public safety, and infrastructure; and strengthened research and development, commercialization, and economic growth. Now, it's time to deliver.

But the promise of Big Data and Analytics faces a key constraint: a talent gap that is felt across all of Canada's regions, sectors, and industries. To date, closing this talent gap has posed a significant challenge – in large part because organizations typically have been looking for "unicorns," those individual candidates with the perfect mix of technical, business, as well as industry and functional knowledge and expertise.

As employers struggle to recruit, retain, and train enough of the right talent to collect, organize, analyze, interpret, and communicate today's unprecedented volumes of data, Big Data and Analytics are at risk of becoming a promise unrealized.

Figure 1. The Promise of Big Data is Constrained by Canada's Big Talent Gap

Exceptional Customer Insights

Product and Service Innovation

Better Decision-Making

Improved Health Care, Social Services, Public Safety, and Infrastructure

Improved Productivity and Performance

Strengthened Research and Development, Commercialization and Economic Growth

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[1] In this paper, "*Big Data and Analytics*" may also be referred to as "*Big Data,*" for brevity.

What Does Canada's Big Data and Analytics Talent Gap Look Like? What Can Be Done?

In a report published 2011, it was estimated that by 2018 the United States alone faces a talent gap of 140,000 to 190,000 professionals with deep analytical skills, and 1.5 million more to interpret and use findings effectively for decision making[2]. How big is this talent gap in Canada, and what can we do to address it?

This paper, "*Closing Canada's Big Data Talent Gap,*" represents the results of the first in-depth examination of the size and nature of Canada's Big Data Talent Gap[3]. Prepared on behalf of Canada's Big Data Consortium, which was formed by Ryerson University in 2014, this study has benefitted from the participation of organizations from coast-to-coast, and across multiple sectors – industry, government, and academia.

Through a two-phased research process, we found that Canada's Big Data Talent Gap is estimated between 10,500 and 19,000 professionals with deep data and analytical skills, such as those required for roles like Chief Data Officer, Data Scientist, and Data Solutions Architect. The gap for professionals with solid data and analytical literacy to make better decisions is estimated at a further 150,000, such as those required for roles like Business Manager and Business Analyst.

We found that Canadian employers across all regions, sectors, and industries are finding it increasingly difficult to recruit, retain, and train Big Data and Analytics professionals. We discovered that Ontario, particularly the Greater Toronto Area, is currently the demand epicentre for Big Data and Analytics talent. And we learned that the industries feeling the most pressure for talent include Finance and Insurance, and Professional, Scientific and Technical Services.

And by all accounts, the situation will worsen unless we take action now. Even when the overall gap is narrowed, we believe a shortage of talent with the right skills will persist unless existing academic and training curriculum are expanded to better meet employers' needs.

Working with senior information technology and information management leaders in Canada, the Consortium has developed six strategies, presented in this paper, to help close this country's Big Data and Analytics talent gap.

But there are no quick-fixes. Constantly changing labour market dynamics mean we will need to remain fluid and adaptable. But we believe the strategies presented in this paper represent solid first steps to help close the talent gap and ensure that Canada is positioned to realize the potential of Big Data and Analytics.

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[2] *"Big Data: The Next Frontier for Innovation, Competition, and Productivity,"* McKinsey & Company, 2011.

[3] In this paper, the "*Big Data and Analytics Talent Gap*" will also be referred to as the "*Big Data Talent Gap,*" or the "*Talent Gap,*" for brevity.