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INVEST IN
CANADA

BIG DATA AND ANALYTICS IN CANADA

Canada

Foreign big data and analytics companies continue to profit from Canada's big data sector

OVERVIEW OF THE CANADIAN BIG DATA AND ANALYTICS SECTOR

The rise of big data and analytics as one of the most significant technology trends of the past two decades has prompted a revolution in how enterprises store, manage and analyze the immense volumes of data created by their businesses. The ever- increasing big data and analytics requirements of major Canadian and global organizations have created opportunities in Canada for all of the leading global players in the big data and analytics space.

The vast universe of enterprise and consumer data that is generated and tracked continues to expand at an exponential rate, and the valuable insights garnered from analyzing this data has created tremendous opportunities for analytics software vendors in Canada and globally. The Information and Communications Technology Council (ICTC) estimates Canada's analytics market at $1.1 billion per year, without counting the indirect efficiency and operational benefits of providing companies with the tools to better extract, organize and analyze their data.[1]

EMC, a world leader in big data and analytics infrastructure, anticipates that the global digital universe will grow from 4.4 trillion gigabytes of data in 2013 to 44 trillion gigabytes by 2020, with the amount of data produced by global enterprises more than doubling every year.[2]

In Canada, opportunities for big data and analytics companies can be found in various sectors, including the following small sampling of the numerous existing and potential use cases:

Health care: Although vast amounts of patient data are created every day, this sector has lagged behind retail and banking when it comes to big data analytics. This is changing rapidly, however, as Canadian healthcare providers move decisively toward electronic health records, and companies like IBM and Accenture are facilitating the use of analytics to create evidence-based, personalized medical solutions that save lives.[3]

The Internet of Things (IoT): Analyst firm IDC estimates that the addressable market size of the Canadian IoT could reach $6.5 billion by 2018.[4] The avalanche of data created by the networks of devices, objects and machines has created new opportunities for both start-ups and established data analytics firms in Canada.

THE BIG DATA ECOSYSTEM IN CANADA

BIG DATA LANDSCAPE
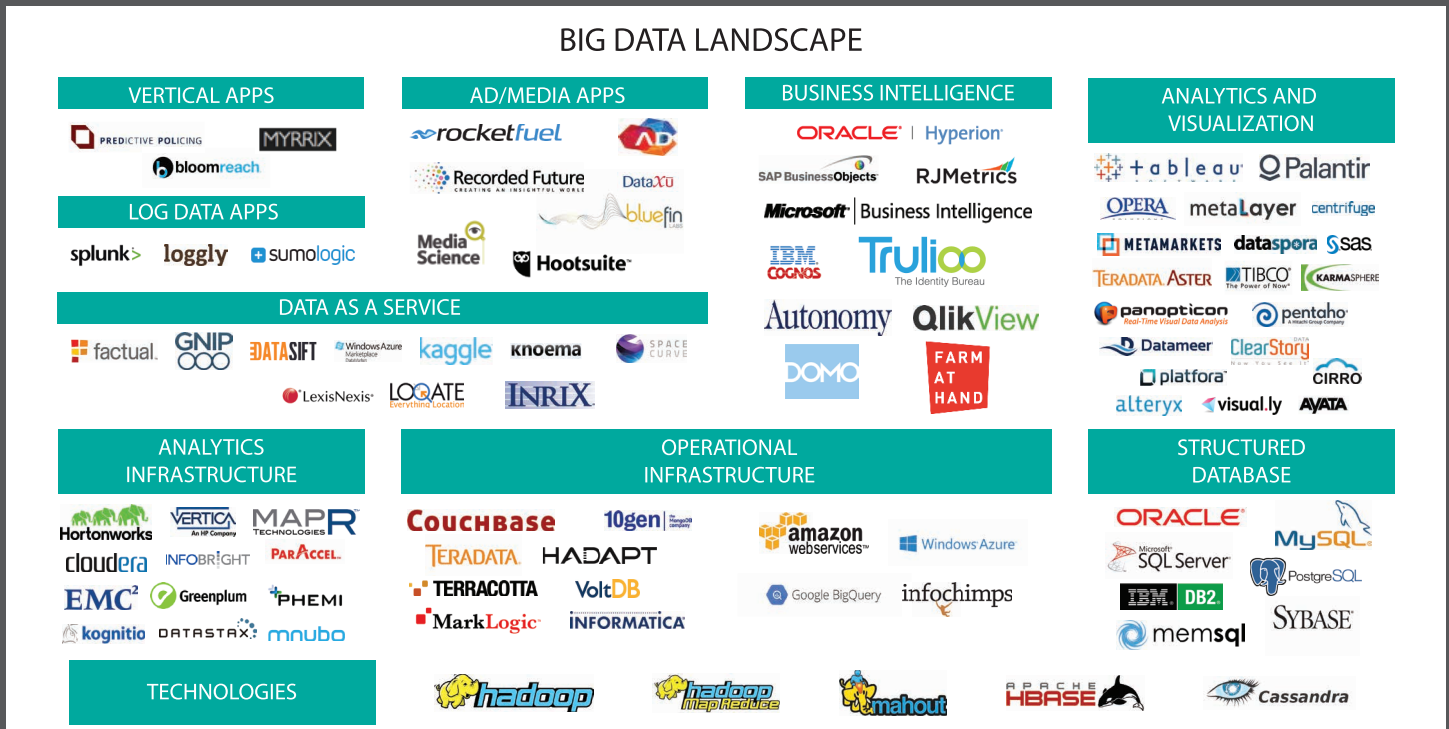
1   Information And Communications Technology Council (ICTC). *Big Data & The Intelligence Economy.*
2   EMC. *The Digital Universe of Opportunities.*
3   IBM Canada. *Healthcare Transformation.*
4   IDC. *Canadian ICT 2015–2019 Forecast.*

EMC EXPECTS CANADA'S BIG DATA MARKET TO GROW BY 40% PER YEAR THROUGH 2020

EMC Corporation is a global leader in business transformation and information technology as a service (ITaaS). The organization specializes in enterprise solutions for cloud computing, information security, data storage and analytics. EMC established operations in Canada more than 20 years ago, and EMC Canada is now a market leader in big data storage and analytics for Canadian and global enterprises.

Q What are EMC's core activities in Canada?

We have made significant investments in Canada for enabling high-velocity capture, discovery and analysis of big data for business. It's a big part of our overall portfolio, and a number of organizations throughout the country utilize our infrastructure portfolio to store and analyze their big data.

Q Where are you located in Canada?

Our key assets in the Canadian big data space include Pivotal Labs, which employs approximately 300 people in Toronto. Pivotal Labs has a mandate to develop cloud-based, big data-related applications. Another key asset is Waterloo, Ontario-based Xtreme Labs, which was acquired by Pivotal Labs in 2012. Xtreme Labs builds applications that help our customers establish and maintain their mobile presence in the marketplace.

EMC's Canadian headquarters is also located in Toronto, and we have regional offices in Manitoba, Quebec, British Columbia, New Brunswick and Alberta.

Q Have the skills of the Canadian workforce met EMC's needs?

We find the technical skills in Canada to be world-class. Where we have found challenges is in the number of new graduates who can go on to become data scientists, for example. However, this is an ongoing challenge for tech companies worldwide.

Q Why did EMC choose Canada for its investment in big data analytics?

Canada is where many of our customers are located. Our clients are large Canadian organizations operating primarily in the financial services, retail, telecommunications and insurance sectors, as well as anything to do with the collection and analysis of brand- related consumer information.

Q Why should foreign organizations invest in Canada?

Historically, EMC acquired companies for the innovative technology they developed, and we have found Canada to be an outstanding investment opportunity in this regard. Based on our experience, we believe foreign investors should take a close look at what Canada has to offer.
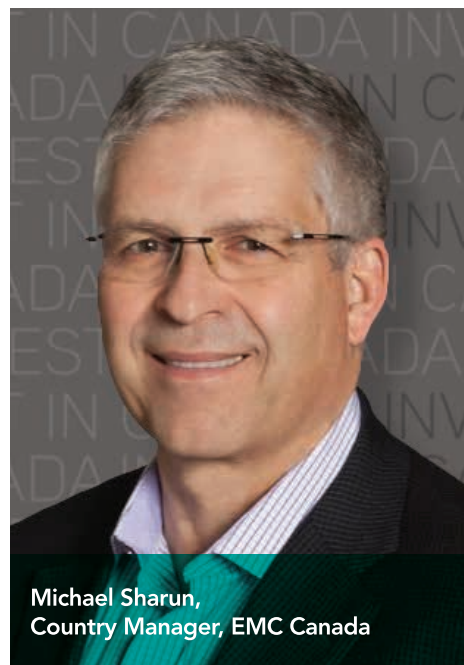
**Michael Sharun,
Country Manager, EMC Canada**

Since starting operations in Canada 20 years ago, EMC Corporation has used its Canadian operations to develop, deliver and support information infrastructure and virtual infrastructure technologies, solutions and services. EMC's Canadian operations support high-velocity capture, discovery and big data enterprise storage systems and software and cloud software and infrastructure-as-a-service solutions for their Canadian customers.

BIG DATA & ANALYTICS:
KEY BUSINESS ATTRACTION FACTORS

The Canadian economy is one of the largest in the world and is closely integrated with the country's major trading partners. As a result, the opportunities for foreign companies to develop and commercialize new big data solutions and platforms in Canada also present an opportunity for commercializing these solutions globally.

$1.1 billion
Estimated size of the annual Canadian big data service market, according to ICTC revenue figures.[5]

$1.45 billion
Analyst firm IDC has predicted that the Canadian big data and business analytics market will grow to $1.45 billion in 2018.

5.7% CAGR
Much of the growth in the software segment is being driven by big data and analytics, and IDC further notes that software is still posting the strongest compound annual growth rate (CAGR) of the major information, communications and technology (ICT) segments in Canada, holding at 5.7% for 2014-2019.[6]

32%
of Canadian enterprises have already deployed wired (i.e., connected via Ethernet) or wireless (i.e. cellular, Wi-Fi, Zigbee, NFC) sensors and systems for business purposes. Applications are deployed in a wide range of verticals, including employee tracking, security systems, asset tracking, fleet tracking, remote monitoring, building management and augmented reality.[7]

100+
Over 100 Masters programs in Computer Science & Information Technology, ranging from Business Information Systems to Data Science and Big Data Analytics, are offered in Canada. According to QS Limited's *World University Rankings*,[8] four of the top 50 Computing Science universities are located in Canada—ensuring that foreign investors in the IoT space are able to source the best talent for their innovation strategies.

90%
In a national survey of Canadian enterprises, IDC determined that 90% of respondents from Canadian insurance companies had implemented big data analytics for their business—representing the highest adoption percentage of any vertical in Canada.

5   Information And Communications Technology Council (ICTC), *Big Data & The Intelligence Economy.*
6   IDC. *Canadian ICT 2015–2019 Forecast.*
7   Ibid.
8   QS Ltd. *QS World University Rankings by Subject 2015 - Computer Science & Information Systems.*

WIDE-RANGING DEMAND FOR BIG DATA ANALYTICS AND INFRASTRUCTURE

Demand among Canadian private sector enterprises for big data analytics and infrastructure solutions is significant. Opportunities exist in areas such as:

- IoT analytics
- Apache Hadoop
- Rich media analytics
- Cognitive computing
- Data monetization
- Wearables—"Quantified Self"
- Health care analytics
- Customer experience

SOME OF THE LARGEST SECTORS OF THE CANADIAN ECONOMY ARE ALREADY SIGNIFICANT CONSUMERS OF BIG DATA AND ANALYTICS SOLUTIONS

According to IDC's *The Canadian Realities of Big Data and Business Analytics*, growth drivers in the sector include:

- dynamic and competitive business environment
- increased digitization of data, which has led to increased data availability
- Canada's dynamic regulatory environment
- Canada's human capital dynamics

THE GOVERNMENT OF CANADA IS A KEY PROMOTER AND CONSUMER OF BIG DATA AND ANALYTICS SOLUTIONS

Key government departments in this country are major buyers of big data and analytics solutions. For example, Health Canada is exploring the use of big data and analytics to enhance its disease and air quality monitoring, and the Canada Revenue Agency uses predictive analytics to address taxpayer non-compliance.[9]

Canadian industry and foreign investors also benefit from Canada's favourable regulatory environment in this sector. Canada's jurisdictional policy around online environments, especially privacy (e.g., no US *Patriot Act*), is considered a model for many nations and contributes to the strength of Canadian industry in this area.

CANADA HAS THE LOWEST SOFTWARE DEVELOPMENT COST STRUCTURE AMONG G7 COUNTRIES

According to KPMG's *Competitive Alternatives 2016* report, Canada offers the lowest overall cost structure in the G7 to investors looking to establish software development operations.[10] Total business costs in Canada are 22.1% lower than in the United States. In electronic systems development and testing this Canadian cost advantage rises to 27.8% over the United States.

This is an important consideration for big data and analytics companies looking to establish operations in North America, as software development is the single largest operating expense in this area.

9   Shared Services Canada. *Big Data @ SSC.*
10 KPMG. *Competitive Alternatives 2016.*

BIG DATA AND ANALYTICS ACTIVITY IN CANADA

British Columbia
Vancouver is one of the most connected cities in the world, and the city's emerging tech hub is also home to major software developers such as **Microsoft**, as well as industry pioneers in the analytics space such as **Hootsuite**.

Alberta
Calgary is the closest major city to Canada's oil fields and many big data and analytics companies have regional offices in the city. Major big data firms with a presence here include **IBM**, **SAS**, **Accenture** and **HPE**.

Ontario
Toronto is widely regarded as Canada's primary tech hub, in addition to the city's role as Canada's financial capital.

As a result, many of the enterprises involved in big data and analytics – companies like **EMC**, **VMware**, **SAP**, **SAS** and **Facebook** – are based in the Greater Toronto Area. Toronto has a rich technology ecosystem, with numerous companies engaged in sectors ranging from big data analytics to financial technologies to cloud computing and gaming.

Kitchener-Waterloo region is also recognized as a leading cluster of technological advancements in big data and Internet of Things. Global and Canadian firms with development operations here include **Dematic**, **LogicBlox**, **NetSuite**, **OpenText**, **BlackBerry**, among others.

Ottawa is a significant centre of innovation in the big data and analytics space, due primarily to the high concentration of public-sector enterprises in Canada's capital city. One example is the Financial Transactions and Reports Analysis Centre of Canada (FINTRAC) – Canada's financial intelligence unit, which began an Analytical Modernization pilot program in 2015, allowing it to cross-reference big data sets from a variety of different sources, to detect and identify money laundering and terrorist financing activities.

Quebec
Montréal is Canada's second largest city and offers foreign investors in the big data and analytics space significant cost and talent advantages. Greater Montréal is home to large big data and analytics firms such as **CGI**, **IBM**, **SAP**, **Google**, **Microsoft** and **Ericsson**. It is also a centre for innovation with firms such as **mnubo**, **DataCandy**, **Guavus** and **Kronos** that are world innovators in the big data and analytics space.

RECENT BIG DATA AND ANALYTICS INVESTMENTS IN CANADA

- In 2015, Vancouver-based **PHEMI**, a provider of health care privacy insights, raised $12.2 million in a financing round led by CTI Life Sciences Fund, Discovery Capital, BDC Capital Healthcare and Yaletown Venture Partners.[11]

- In 2015, Montréal IoT data analytics company **mnubo** announced a $6 million Series A round of funding led by White Star Capital, with participation from McRock Capital.[12]

- In 2016, **IBM** announced plans to create 100 new full-time jobs in its security division in Fredericton, New Brunswick over the next three years. IBM's Security QRadar analyzes data across an organization's IT infrastructure to identify potential security threats, acting as support for IBM's 10 global security centres.[13]

- In 2016, **Nokia** completed its acquisition of Ottawa-based data identity, access management and orchestration security firm Nakina Systems.[14]

11 Techvibes NewsDesk. *PHEMI Closes $12.2 Million Venture Financing for Big Data Healthcare Startup.*

12 mnubo Press Release.

13 CBC News. *IBM adding 100 cybersecurity jobs in Fredericton over 3 years.*

14 Nokia Press Release. *Nokia strengthens security portfolio with planned acquisition of Nakina Systems.*

WHY CANADA FOR R&D AND INNOVATION?

KPMG shows that Canada has emerged once again as the most cost-competitive country in the G7 in which to do business, with a **14.6%** cost advantage over the US.

In software design, firms operating in Canada enjoy a **22.1%** overall cost advantage over their US-based counterparts. In electronic systems development and testing this Canadian cost advantage rises to **27.8%** over the United States. These cost advantages are significant for foreign investors in the cloud/virtualization industry, where system design, development and testing are important operating and development cost elements.

CANADA-WIDE PROGRAMS

NATIONAL RESEARCH COUNCIL CANADA—INDUSTRIAL RESEARCH ASSISTANCE PROGRAM (IRAP)

This program provides innovative help for small and medium-sized enterprises in Canada. Advisory services, funding for innovation, networking and youth employment, among other benefits are offered. This program is available to a wide variety of sectors and industries, and in 2012-2013, IRAP provided $173.2 million in support to qualified organizations.

http://www.nrc-cnrc.gc.ca/eng/irap/services/financial_assistance.html

SCIENTIFIC RESEARCH AND EXPERIMENTAL DEVELOPMENT (SR&ED) PROGRAM

The SR&ED program provides both a business income tax deduction and an investment tax credit. The tax deduction enables a business to reduce its tax liability in the current year, or carry these expenditures forward indefinitely to reduce its tax liability in future years. A business can also receive an SR&ED investment tax credit that may be refundable, or can be used to reduce taxes payable.

http://www.cra-arc.gc.ca/txcrdt/sred-rsde/menu-eng.html

MITACS

MITACS is a government-funded not-for-profit organization that funds technology-specific internships and fellowships through Canadian universities. With over 10,000 research collaborations involving Canadian universities and colleges, and over $90 million in funding provided, this program is just one of the links between Canada's world-leading post-secondary institutions and the software/IT industries.

https://www.mitacs.ca/

EXPORT DEVELOPMENT CANADA (EDC) AND BUSINESS DEVELOPMENT BANK OF CANADA (BDC)

These organizations provide flexible financing programs and solutions tailored to support foreign direct investment in Canada. They provide insurance and bonding, financing, equity and venture capital, as well as a variety of consulting and advisory services to facilitate foreign trade.

http://www.edc.ca/
http://www.bdc.ca/

For a comprehensive list of programs, please visit: www.investincanada.com

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INVEST IN CANADA

Global Affairs Canada

111 Sussex Drive

Ottawa, ON, Canada K1N 1J1

Email: investincanada@international.gc.ca

Website: www.investincanada.com

@invest_canada