

Leveraging Emerging Technologies for the Benefit of Canadians

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Three key technology shifts

Data is the new basis
of strategic advantage



**Data is becoming
the world's new
natural resource,
transforming
industries and
professions.**

Cloud is the path to
new business models



**The emergence of
cloud is
transforming IT and
business processes
into digital services.**

Engagement requires
a systematic approach



**Mobile is transforming
individual engagement
– increasing ability to
deliver value via
“extended reach”.**

Moments matter to today's citizen

CONSIDER:

5.9B mobile phone subscribers across the globe in 2013

71% of smartphone users compare prices in stores

92% of consumers research online and seek opinions via earned media before a purchase



2x as many people in 2013 were willing to share their geolocation data in return for personalized offers compared to the previous year

84% of smartphone users check an app as soon as they wake up

2/3rds of U.S. adults say they would not return to a business that lost their personal, confidential information

\$1T of upside potential in online retail sales if buyers trust more

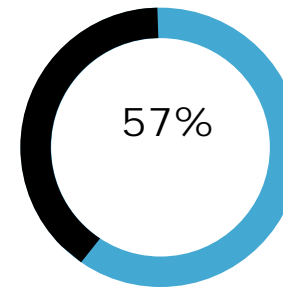
4/5ths of U.S. adult smartphone users keep their phones with them 22 hours per day

5mins. The response time users expect from a company once they have contacted them via social media

80% of individuals are willing to trade their information for a personalized offering

84% of Millennials say social and user-generated content has an influence on what they buy

70% of Boomers agree



of companies in 2016 will spend more than 25% of their IT budget on systems of engagement. (Double the investment one year ago.)



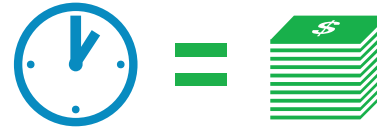
The world we live in stresses our societal **planning and management** abilities, our physical **infrastructure** as well as our **health and personal growth**.



In the last century, water use has been **growing at more than 2X the rate of the population**.¹



Between **2000** and **2012**, natural disasters caused **\$1.7 trillion** in damage and killed **1.1 million people**.⁵

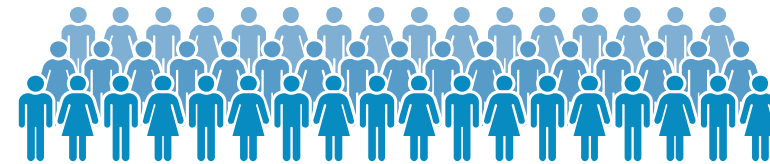


Traffic congestion costs:

US – **\$121 billion** annually²

UK – **£491 per car-commuting household/year**³

Beijing – **4.22% of GDP**⁴



By **2050**, **70%** of the global population is expected to **live in cities and urban areas**.⁶

¹ <http://www.unwater.org/statistics/statistics-detail/fr/c/211811/>

² https://www.rita.dot.gov/utc/utc/sites/rita.dot.gov.etc/files/utc_spotlights/pdf/spotlight_0313.pdf

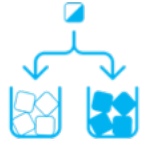
³ <http://www.telegraph.co.uk/finance/newsbysector/transport/9734126/Traffic-congestion-costs-UK-economy-4.3bn-a-year.html>

⁴ <http://cedb.asce.org/cgi/WWWdisplay.cgi?295422>

⁵ <https://www.dosomething.org/actnow/tipsandtools/11-facts-about-disasters>

⁶ Meeting of the Minds Webinar, *From Fragile to Agile: Transforming Economies Through Business Models and Partnerships*, Riz Khaliq, August 13, 2014

Humans excel at:



Common Sense



Dilemmas



Morals



Compassion



Imagination



Dreaming



Abstraction

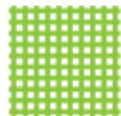


Generalization

Cognitive systems excel at:



Natural Language



Pattern Identification



Location Knowledge



Machine Learning



Eliminate Bias



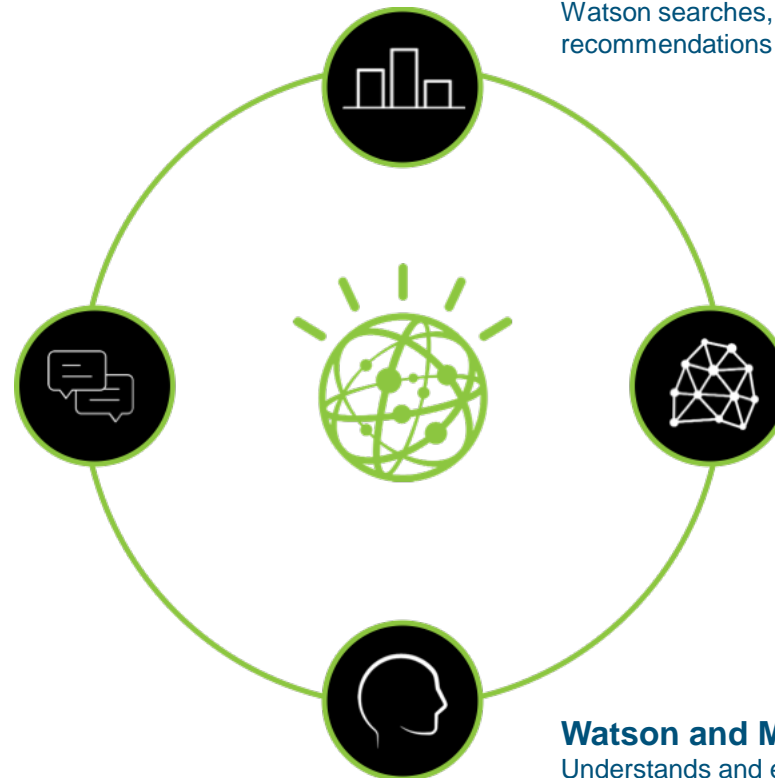
Endless Capacity

Watson: A Cognitive System

Understands Natural Language

Watson can read and understand millions and millions of documents.

- Medical Texts
- Evidence-Based Guidelines
- Peer-reviewed Articles
- Clinical records



Generates and Evaluates

Watson searches, extracts candidate recommendations scores and ranks decisions

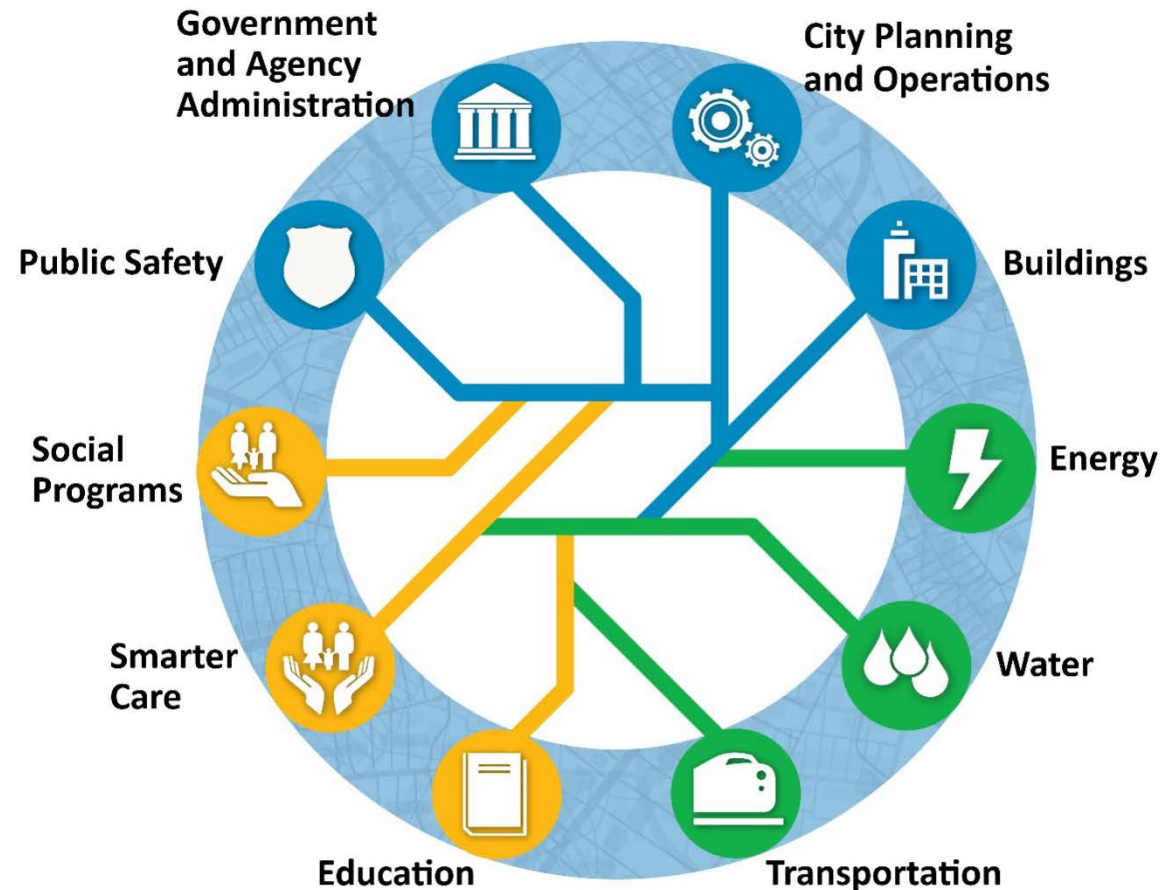
Learns and Adapts

Decisions being made by leading Physicians feed the engine

Watson and Me

Understands and engages me
Learns and improves over time
Helps me discover
Establishes trust
Has endless capacity for insight
Operates in a timely fashion

Vibrant cities are realizing their full potential by **integrating** across functions, **capitalizing** on new insights, **creating** system-wide efficiencies and **collaborating** in new ways



Smarter Care can **boost wellness and community vitality**

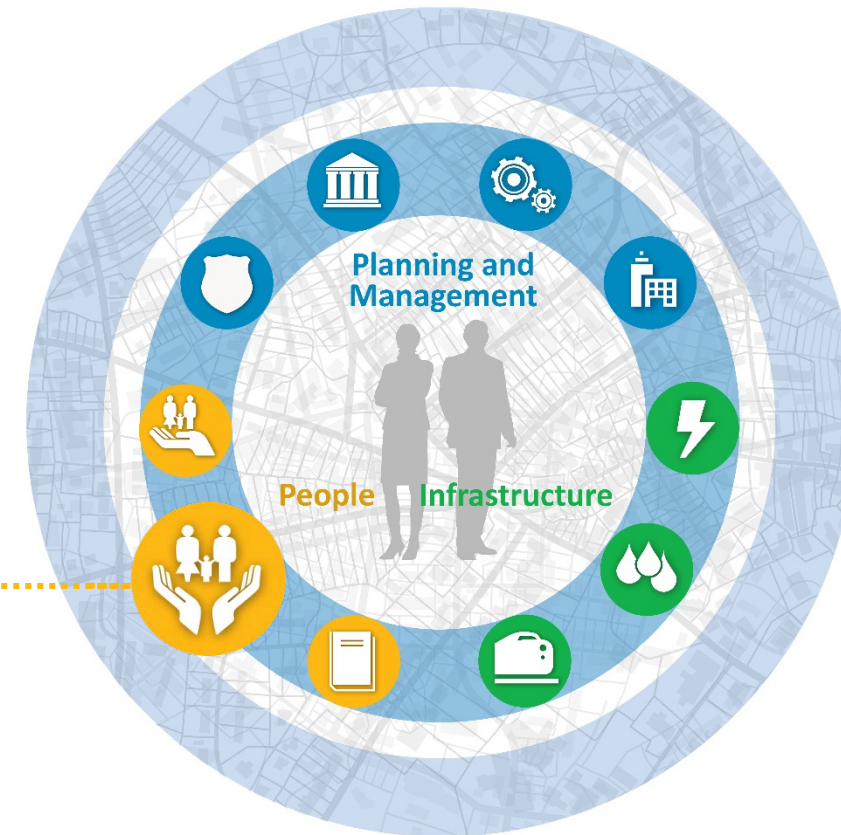
Smarter Care

Capitalize on new insights

Healthcare analytics turns data into clinical and business insights in real time for point-of-care decisions and productivity

Collaborate in new ways

Forward-thinking organizations are connecting their healthcare data, systems and processes to facilitate secure communications and information sharing



Health informatics research pushing new frontiers in critical care



“The connection of Artemis to ORION and Southlake is the next step in our ability to show that advanced and complex analysis of physiological data can be provided remotely to give doctors new diagnostic tools at the bedside. Many babies are born premature or ill at term in rural and remote communities and we need to demonstrate cost effective ways to enable these babies to be monitored remotely.”

— Dr. Carolyn McGregor, Professor, UOIT Faculty of Business and Information Technology

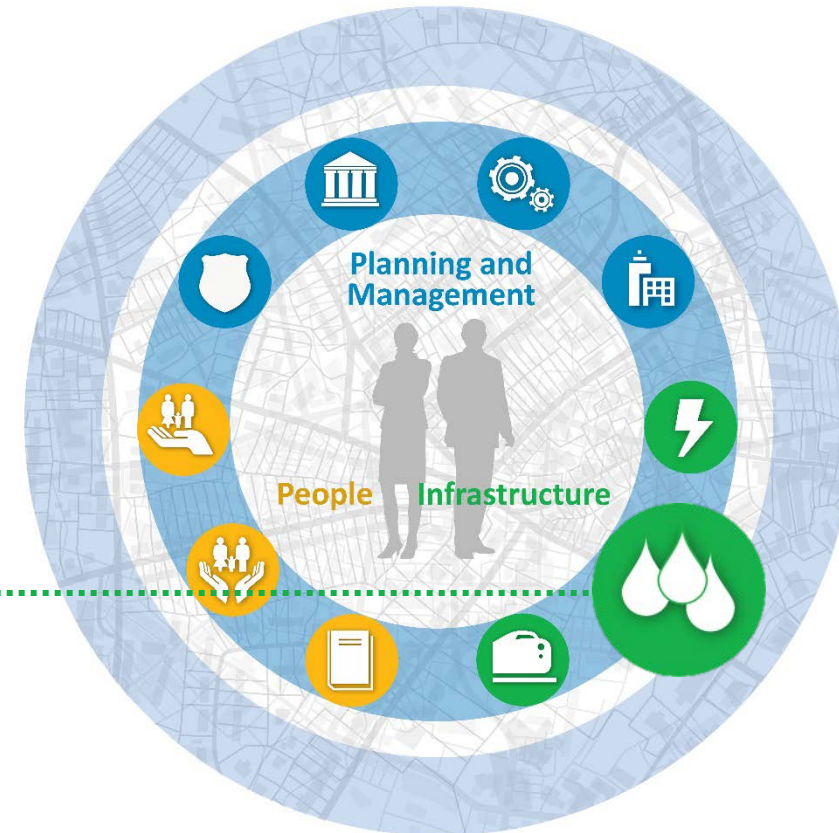
Water management systems **make operations and infrastructure more reliable and efficient**

Smarter Water Management

Blue Cities Water plays a vital role in maintaining healthy communities

Turns data from smart meters into opportunities for recapturing revenue and detecting fraud

Delivers insights from big data and smart devices to help operators improve irrigation, flood management and sewer overflows



Prevent disasters and environmental degradation, while reducing the cost of managing water by up to 15%



“The opportunities enabled by highly-instrumented, data-centric smart watersheds will not only improve understanding of watershed management challenges, but will allow the development of new tools for monitoring and incorporating real-time data into decision-making”

— Brenda Lucas, Executive Director of Southern Ontario Water Consortium (SOWC)

Intelligent transportation systems can **improve operational efficiency and enhance traveler safety, speed and satisfaction**

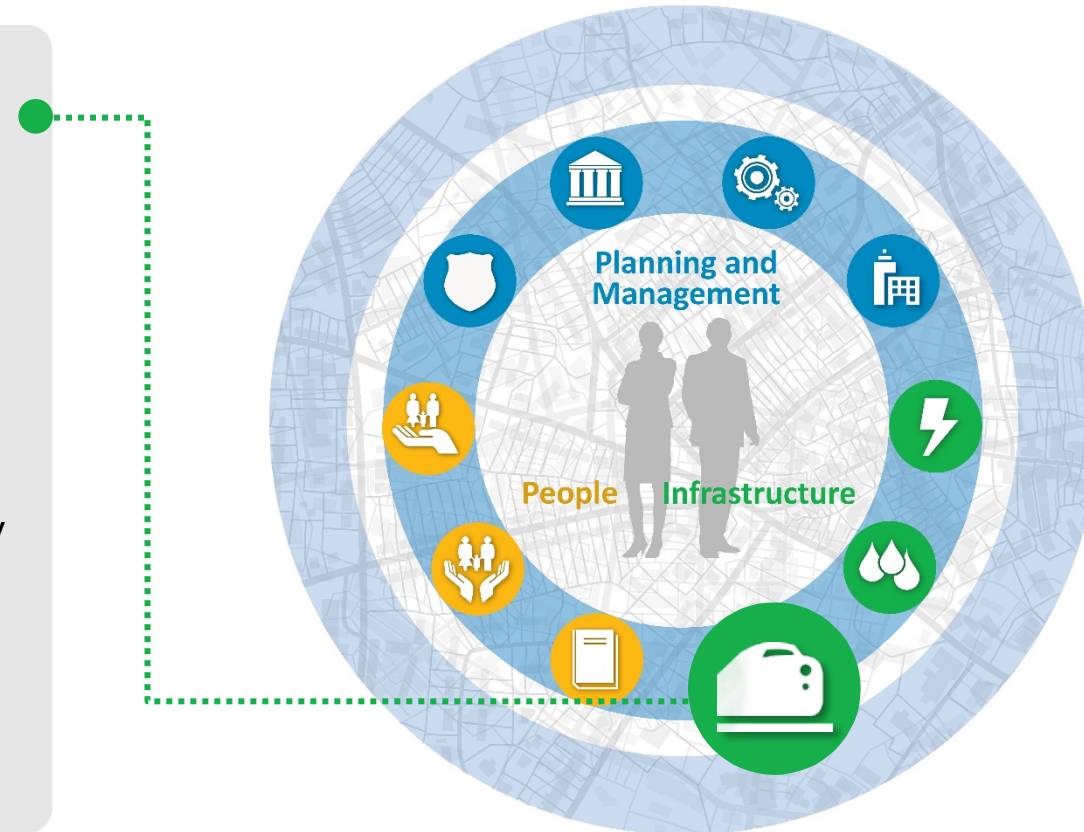
The Modern Connected Car

Around ten million lines of software code and producing up to 25GB of data every hour

By 2020, 90% of new cars will feature a built-in connectivity growing from less than 10% today

System of Systems cars will ultimately communicate, socialize and collaborate with other things, including other vehicles, traffic lights, parking bays and retailers

Connected cars will bring forth an array of digital services created out of the vast amounts of data this connectivity will unleash



“We are making this investment because we see an opportunity to take advantage of a wealth of talent in mobile technologies, software and advanced automotive engineering available in Canada’s leading universities and other partner organizations.”

— Steve Carlisle, GM Canada president



SOUTHERN ONTARIO SMART COMPUTING INNOVATION PLATFORM

WHAT IS SOSCIP?

- A groundbreaking research collaboration
- An engine for innovation and growth
- Canada's most powerful advanced computing platforms

WHAT CAN SOSCIP DO FOR YOU?

If you're an academic or industry researcher with a collaborative research project, our team of experts will help you gain access to:

- Canada's most powerful advanced computing platforms
- Expert technical help
- Dedicated funding for postdoctoral fellows and graduate students
- SOSCIP's partnership network to find the right collaborators for your project

AREAS OF FOCUS



Agile Computing



Cities



Cybersecurity



Energy



Health



Digital Media



Water



Advanced
Manufacturing



Mining

Since its inception SOSICIP has driven significant results...

Launched
50 research
projects,
which have engaged
or created
38 small
businesses

Enhanced
the skills of
over 300
post-doctoral fellows,
who are the disruptors
of tomorrow

Created
240+
skilled jobs including
88 research
jobs

Established
a pipeline of close to
\$2 billion
in revenues for these new
or growing enterprises

More specifically, some of SOSICIP's 50 projects are:



Creating software that will make the discovery of new medicines faster, cheaper, and more efficient.



Accurately tracking and predicting climate change in Southern Ontario's Grand River Watershed.



Using advanced analytics software to help predict and identify prospective mineral deposits.



Building an innovative solution to help make brain scans more convenient and affordable.

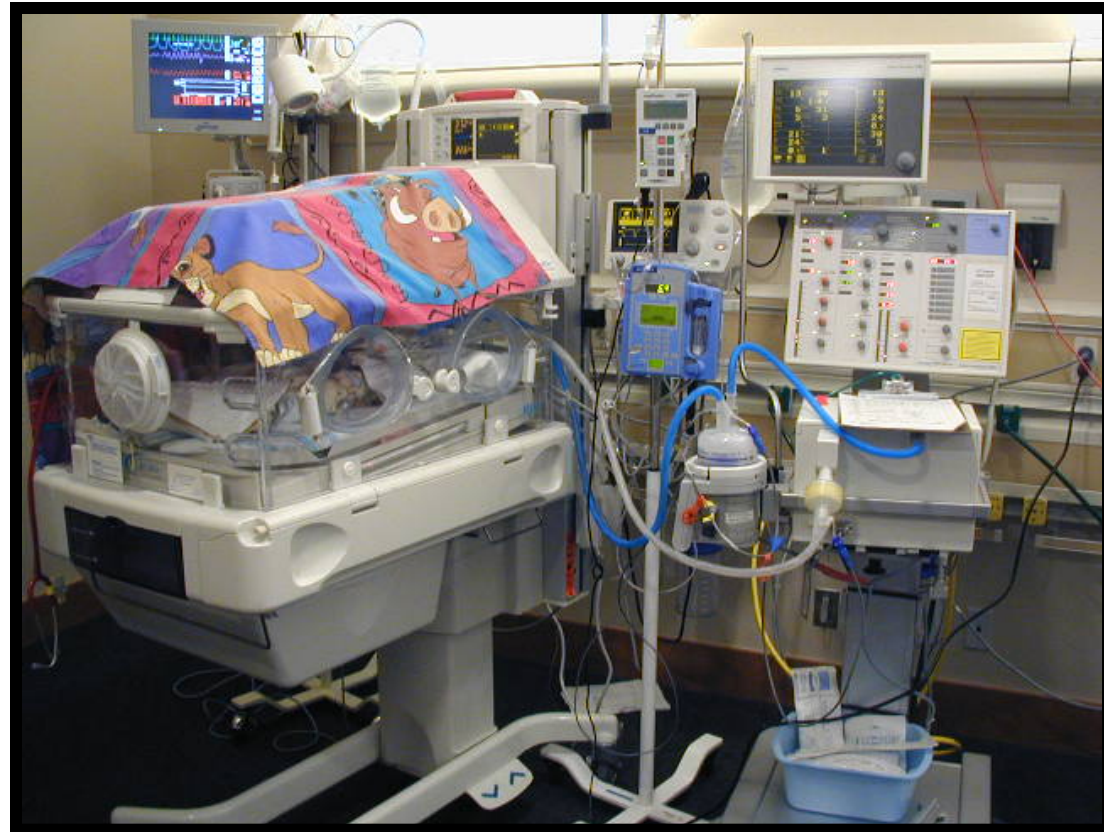
All of SOSICIP's projects and research collaboration is of benefit to Canadians and significantly enhances Canada's data mining and analytics capacity, which in turn helps drive additional new product development required to ensure our global competitiveness and prosperity.

Insights mean moving from retrospective to predictive – e.g. monitoring of premature infants - predicting onset 24 hrs in advance

- Research Project between University of Ontario Institute of Technology (UOIT) & IBM Research - Monitors infants in the Hospital for Sick Children NICU

- Manages 100's data values per second – applies context and evidence-based rules

- Measures trends in multiple readings and based on combination of subtle changes, predicts adverse event 24 hours before onset.



Ontario Incubator Initiative - partnership announcement

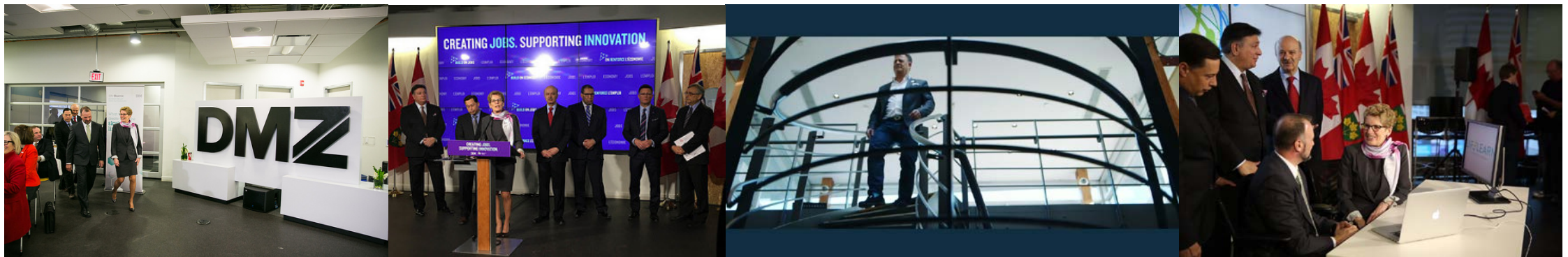
TORONTO, ON – February 24, 2016: Ontario Premier Kathleen Wynne along with IBM Canada President Dino Trevisani, Ryerson President Mohammed Lachemi and OCE President Tom Corr unveiled the government and IBM's investment in a new innovation initiative designed to **help up to 500 small and medium-sized enterprises (SMEs)** create jobs, embrace next-generation technologies and compete in the global marketplace. The government is contributing up to \$22.75 million in the Ontario Incubator Initiative. IBM is contributing another \$24.75 million of in-kind cognitive and cloud technologies and related expertise



Ontario Centres of
Excellence



Ontario





LIFE LEARN

How can any vet be an expert in every single breed? They can use LifeLearn Sofie built with the cognitive capabilities of IBM Watson to help identify treatment options. Vets will be able to simply ask Sofie a question, and it will scan through hundreds of thousands of medical resources to return specialized treatment options. All within a few seconds.

blue J LEGAL

Competition held among 10 top WW Universities to create a Watson business. UofT places second with a legal application. Taking 20 years of Family Case history – applied Watson to search for most relevant case to show precedent for client (prosecute or defend). Ranks top 5 found by confidence level with clauses highlighted in case documentation. Now incorporated – and applying to Tax Law.



Watson helping the Toronto Raptors build a cognitive all-star team

IBM and Raptors owners, Maple Leaf Sports and Entertainment (MLSE), team up for first of its kind cognitive solution - **IBM Sports Insights Central**.

Designed to help sports teams turn unstructured data like player information, social media sentiment, team and league statistics, trade simulation and contract management into actionable strategies to improve team performance and drive time-critical player decisions.

This solution was developed using [IBM iX](#), which supports many of the premier global sporting and retail brands in Loyalty Programs and enhancing Fan/Brand experience including [The Atlanta Falcons](#), [The Ottawa Senators](#), Coke, Starbucks and Air Canada.



Leveraging Emerging Technologies for the Benefit of Canadians



Creation of new partnership opportunities with:

- **Corporations**, both large and small, that want to invest and join the industry led innovation model.
- **Governments** that want to broaden their partnerships with new approaches and programs.
- **Universities/Colleges and Hospitals** from across all regions of Canada who want to expand their research.

**Help build partnerships that can provide innovative solutions
– attract more investment for the future**

