Artificial Intelligence: A Perspective from the Government of Canada

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Canada's AI Ecosystem

Research:
- Montreal: UBC, AMII
- Toronto: UT, Vector, CIFAR
- Edmonton: University of Alberta, AMII
- Winnipeg: UM, EMILI
- Vancouver: UBC
- Waterloo: UW

Incubators:
- Montreal: MILA, IVADO, Centech, Founder Fuel
- Toronto: CDL, Next AI
- Edmonton: QuantumWorks
- Winnipeg: QuantumWorks
- Vancouver: QuantumWorks
- Waterloo: QuantumWorks

Tech Giants:
- Montreal, Toronto, Edmonton: Google, Microsoft, Facebook, Samsung
- Vancouver: Google, Uber, NVIDIA
- Waterloo: Google, IBM, NVIDIA

Start-ups:
- Montreal: Element AI, Botler.ai, Automat
- Toronto: Deep Genomics, Meta, Blue J Legal
- Vancouver: Deep Genomics, Meta, Blue J Legal
- Edmonton: QuantumWorks
- Winnipeg: QuantumWorks
- Waterloo: QuantumWorks

Investments in AI:
- CREF: $93.6 million (2016-2023)
- CIFAR: $60 million (2011-2022)

Training Computers:
- Using data to recognize patterns
- Computer program rewarded for correct answers, punished for mistakes

Deep Learning Hubs:
- Montreal
- Toronto
- Edmonton
- Winnipeg
- Vancouver
- Waterloo

Superclusters:
- CANADA'S AI ECOSYSTEM
- SCALE.AI (across QC-Windsor corridor)

AI in Canada Moving from Research to Broad Application

There are 130 AI Start-ups in...

There are 210 AI Start-ups in...

There are 120 AI Start-ups in...
Canada’s AI Ecosystem

Canadian AI Ecosystem 2018

Source: Jean Francois Gagné (Element AI), Map of the Canadian AI Ecosystem, 2018.
Canada has Strengths in AI

- Strong expertise in deep learning and reinforcement learning
- World-leading centres of expertise in Edmonton, Toronto-Waterloo, Montreal

Private investment: new records

$158\text{+M}$ → $252\text{+M}$

2015 2017

Tech giants in Canada

Large Canadian AI investors

Microsoft Alphabet Facebook RBC TD Bank

Fujitsu LG Thales

Samsung NVIDIA UBER

Manulife

NATIONAL BANK

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Government of Canada Focus

• Sustaining research excellence and talent
• Promoting AI adoption and innovation across all sectors
• Maintaining public trust and confidence
• Advancing international collaboration
Investment in Fundamental Science
to support the work of researchers and to provide them access to the state-of-the-art tools and facilities.

Digital Research and Infrastructure Strategy
to fund and deliver better access to advanced computing and data resources.

The Pan-Canadian Artificial Intelligence Strategy
to retain and attract top academic talent, and position Canada as a world leading destination for companies seeking to innovate through AI.

Greater Diversity and Gender Balance
through fair access to research support, equitable participation in the research system, and improved data collection.
Adoption and Innovation

Innovation Superclusters Initiative
includes AI-related hubs,
including SCALE.AI in Quebec
and the Digital Technology Supercluster in BC.

Strategic Innovation Fund
to attract and support high-quality business investments.

National Digital and Data Consultations
roundtable discussions on digital and data transformation.

Adoption in Government
All across government: explore AI applications.
Government of Canada Data Strategy
Modernizing StatsCan to increase data access.

$950 M
$2.06 B
Superclusters and AI in Action

**PROTEIN INDUSTRIES**
PRAIRIE PROVINCES

- **Employment**: more than 4,500 over 10 yrs.
- **GDP**: more than $4.5 billion over 10 yrs.
- **Participants**: 100+

**OCEAN**
ATLANTIC CANADA

- **Employment**: more than 3,000 over 10 yrs.
- **GDP**: more than $14 billion over 10 yrs.
- **Participants**: 110+

**DIGITAL TECHNOLOGY**
BRITISH COLUMBIA

- **Employment**: more than 13,500 over 10 yrs.
- **GDP**: more than $5 billion over 10 yrs.
- **Participants**: 270+

**SCALE.AI**
QUEBEC

- **Employment**: more than 16,500 over 10 yrs.
- **GDP**: more than $16 billion over 10 yrs.
- **Participants**: 110+

**ADVANCED MANUFACTURING**
ONTARIO

- **Employment**: more than 13,500 over 10 yrs.
- **GDP**: more than $13.5 billion over 10 yrs.
- **Participants**: 130+
Trust, Confidence, and Responsible AI

Future of work
Market frameworks
Responsible and ethical AI
Multistakeholder engagement

Initiatives underway
• CIFAR: AI & Society program
• National Digital and Data Consultations
• TBS Directive on Automated Decision-Making
• Open Government
Canada's strength in AI ensures a strong position to influence international AI policy areas: technology development, adoption, ethics, and regulations.
Looking Forward

• Impact on science and knowledge discovery

• Pervasiveness and cross-sectoriality: think holistically

• Public confidence is key