



# The Blockchain industrial ecosystem in Canada

*ADI Summit, Toronto 2020*

By Marc Lijour

May 21, 2020

The Information and Communications Technology Council (ICTC) is a centre of expertise on the digital economy  
with 25+ years of research on the ICT sector and the labour market



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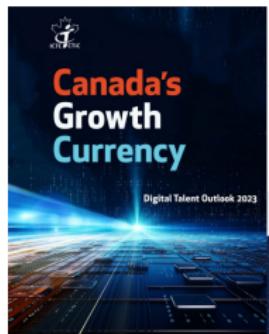
{ Not for profit }

# A centre of expertise for the Digital Economy

## RESEARCH

## PROGRAMS

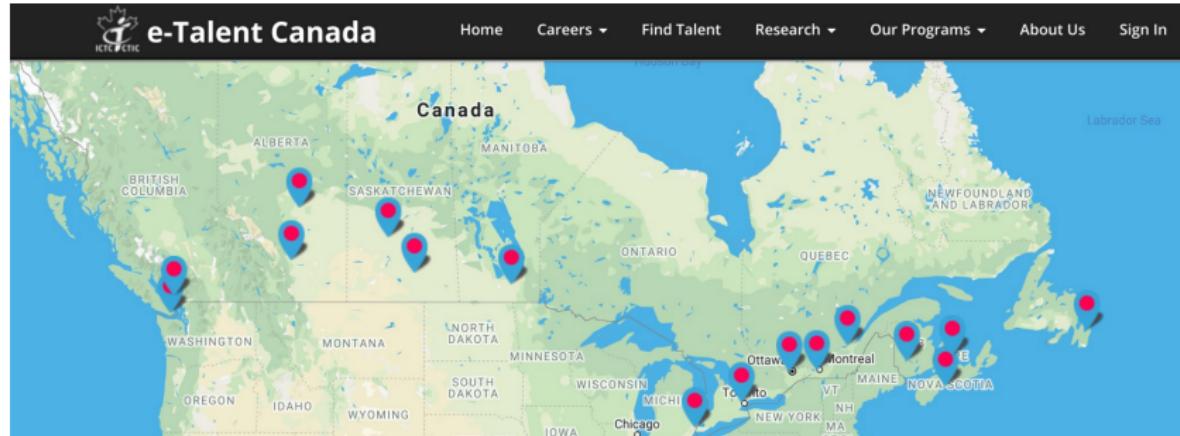
### Policy Development & Research



### Capacity Building & Innovation Readiness



# e-Talent Portal



## Services

- information about the job markets
- competency tools & assessments
- training
- access to employment



# JobSite

## Jobseeker: Browse jobs

JobSite  
eTalentCanada

JOBS

COMPANIES



### Job type

Select

### Category

Select

### Location

Select

### Latest jobs

#### Senior Software Quality Assurance Analyst

Hello World  
Full-time  
Toronto ON  
23 days ago

\$71,000/year



The Senior Software Quality Assurance Analyst is responsible for the successful delivery of large-scale digital projects. Their goal is to use available tools and techniques to build great software in an iterative and incremental fashion. As a Software Quality Assurance Analyst, you will work as part of a highly collaborative team to push innovation forward. You will attend and be an active const

#### SharePoint Developer

Broadleaf  
Full-time  
Concord ON  
23 days ago

\$65,000.00 to \$90,000.00/year



About SharePoint: Responsibilities Act as SharePoint expert to help clients align business needs with SharePoint features and functionality. Gather and analyze requirements of assigned projects. Provide successful solutions to client's business/technical problems. Consult on best practices for SharePoint, work with clients to recommend correct course of action, especially with SharePoint

#### Database Administrator

Broadleaf  
Full-time  
North York ON  
23 days ago

\$70,000/year



Position Summary: The Database Administrator is responsible for ensuring that the database is maintained, tested and capacity is available to provide the optimal service to users. Position Responsibilities: Developing and maintaining the multiple staging, QA and production environment within the capacity scale which includes forecasting needs Planning and implementing of MySQL databases ref





# Client Portal

The platform for clients to access services



Mattdamon Profile

## eTalent Portal Profile

REGISTER FOR A NEW PROGRAM

Edit Profile

Help

Logout



Welcome, Matt Damon

ICTC helps students and jobseekers in making informed career choices by increasing their knowledge of in-demand jobs and wages, the sectors that are hiring, their education and training options, as well as by connecting them to employment opportunities

### Program Information

#### PROGRAM NAME

Digital Equity and Employability Pathway (DEEP)

#### PROGRAM DESCRIPTION

The Digital Equity and Employability Pathway Program (DEEP) is a one-year initiative that works to upskill Newcomers, Refugees and Indigenous Peoples within Canada from low demand to high demand positions. Through self-directed courses with the Information and Communications Technology Council (ICTC) and certifications through Microsoft, participants will gain the training and digital skills needed to successfully upskill in their career and integrate into the digital-based economy.



#### SERVICE DESCRIPTION

Badgr is ICTC's Micro Credentialing Platform. Track your learning here by gaining specialized skills and earning badges. Log on to ICTC's Badgr Portal using your email address, explore different learning pathways, and plan the next steps of your learning journey.

[Visit Badgr](#)



#### SERVICE DESCRIPTION

Canvas is ICTC's Learning Management System. It simplifies learning by connecting all the digital tools in one place. You can access online course content, including videos and quizzes, and then earn badges based on performance or completion of modules.

[Visit Canvas](#)



#### SERVICE DESCRIPTION

JobSite enables jobseekers and employers to connect with ease. Jobseekers can build a profile, search job listings, and apply with a single click. Employers can post jobs, manage applications, and browse jobseeker profiles.

[Visit Jobsite](#)



ICTC

CTIC



## Need help moving your operations online?

- Digital communication
- Information management
- Collaboration tools and practices
- Reconfiguring your supply chain
- Moving to the cloud...

### What is the WIL Digital Subsidy?

<https://wil.digital>

The WIL Digital program subsidizes student work placements, creating important opportunities in emerging ICT sectors. WIL Digital subsidies are offered to eligible Canadian companies that hire students for work placements. WIL Digital is funded by the Government of Canada's Student Work Placement Program (SWPP) and provides the following wage subsidy types:

- 50% for student employment, \$ 5,000 maximum
- 70% for student employment, \$ 7,000 maximum *if the student falls within one of the following under-represented groups:*
  - Women in science, technology, engineering and mathematics (STEM)
  - Indigenous students
  - Recent immigrants (arrived within last 5 years)
  - Persons with disabilities
  - First-year students.

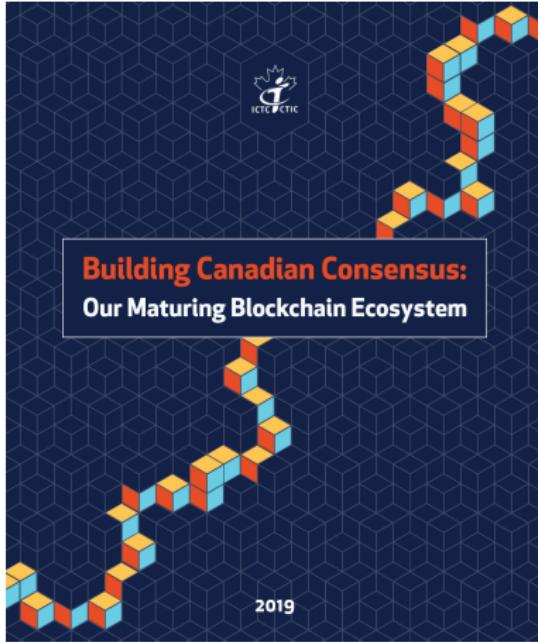


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# Report on the Blockchain industry in Canada



A national study on the state of the Blockchain industry and its ecosystem in Canada (2019).

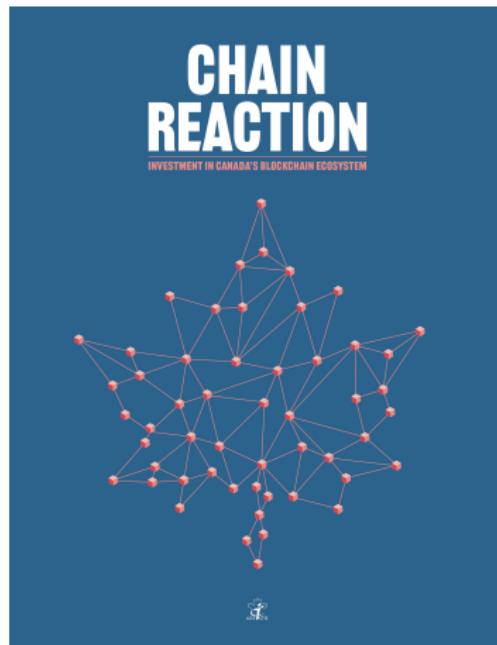
We looked at 288 firms and 1,600 workers and their role.

Source: Web (incl. job boards), plus 24 interviews, and two group discussions.



# Upcoming report on the Blockchain industry in Canada

To be published **Summer 2020**



Looking at the **Foreign Direct Investment (FDI)** opportunities for Canada.

Primary research: 23 interviews with Blockchain professionals established outside of Canada.

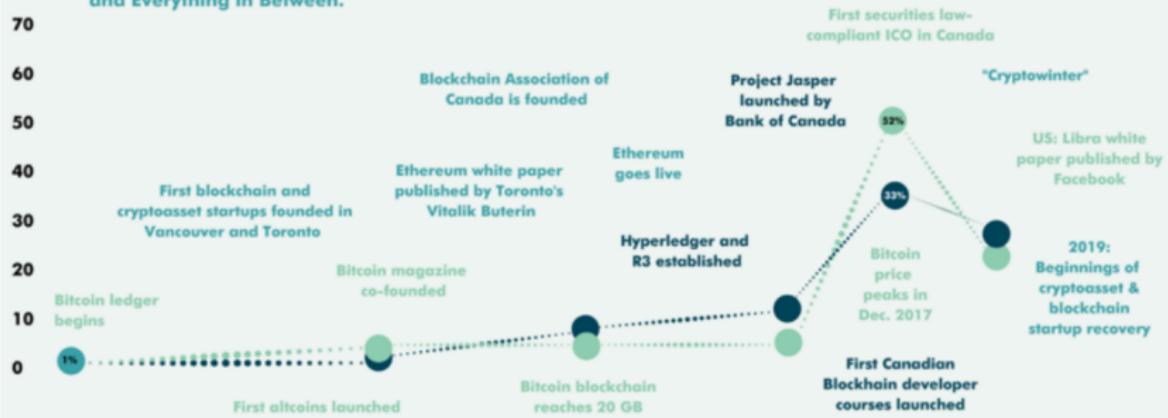
Secondary research: scholarly and industry literature.



# Blockchain in Canada

## BLOCKCHAIN IN CANADA

A DECADE OF ENTREPRENEURSHIP IN:  
Cryptoassets,  
Blockchain Use Cases,  
and Everything in Between.



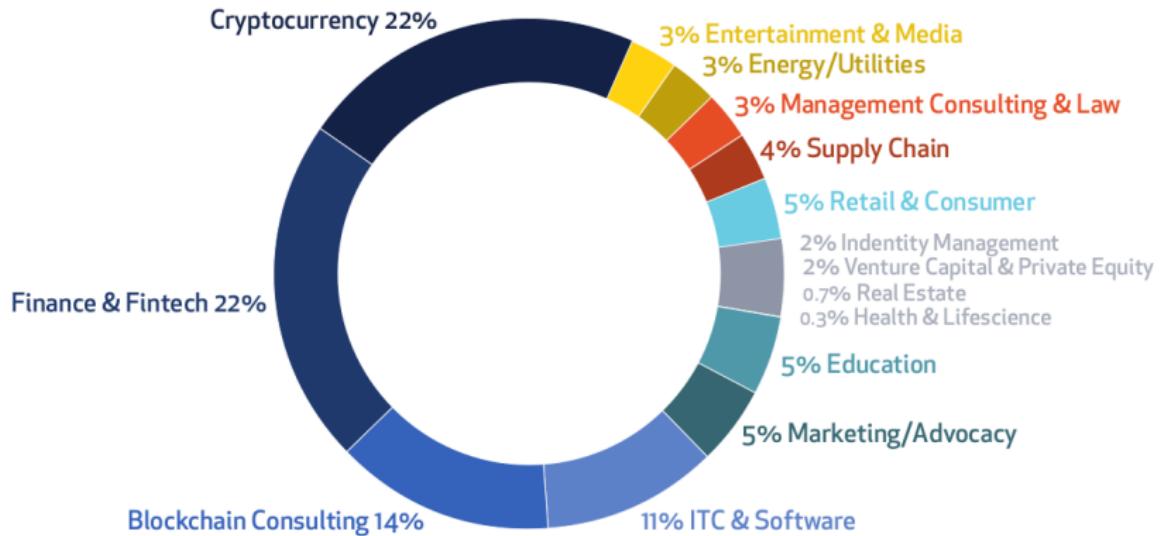
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019

Blockchain technology companies with Canadian employees: % of total founded each year

Cryptoasset companies with Canadian employees: % of total founded each year

Note: Based on a sample of companies founded from 2009-2019 (n = 231). 2019 data incomplete. Companies with unidentifiable founding years were excluded from this figure.

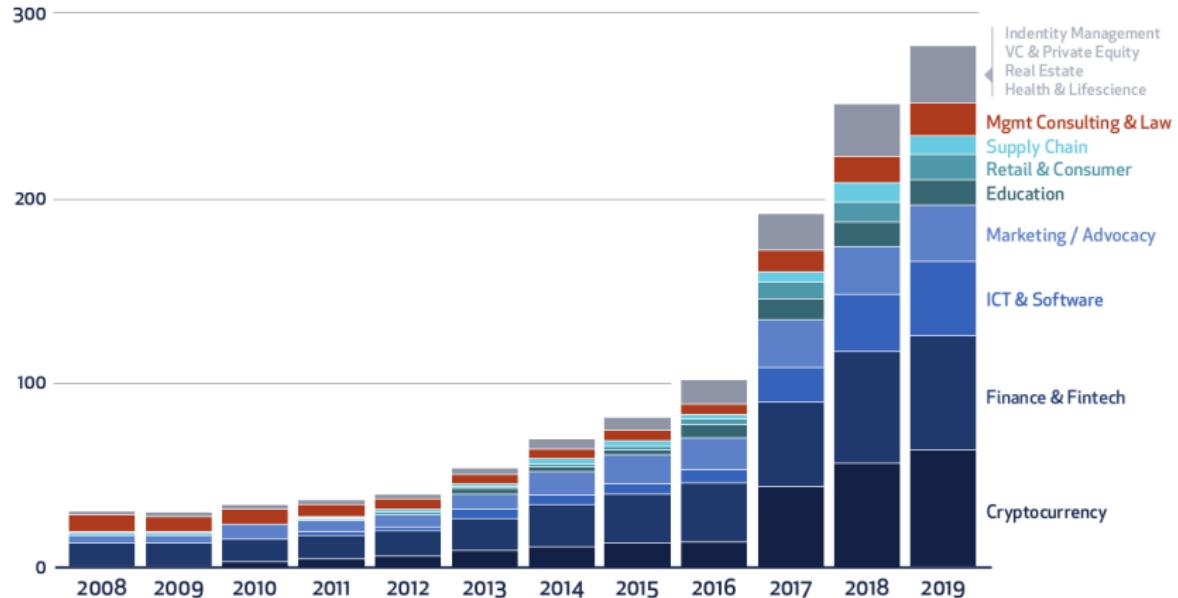
# Canadian companies per sector



Source: ICTC Note: Unverified companies excluded



# Canadian companies per sector



Source: ICTC Note: 2019 value based on first half of year

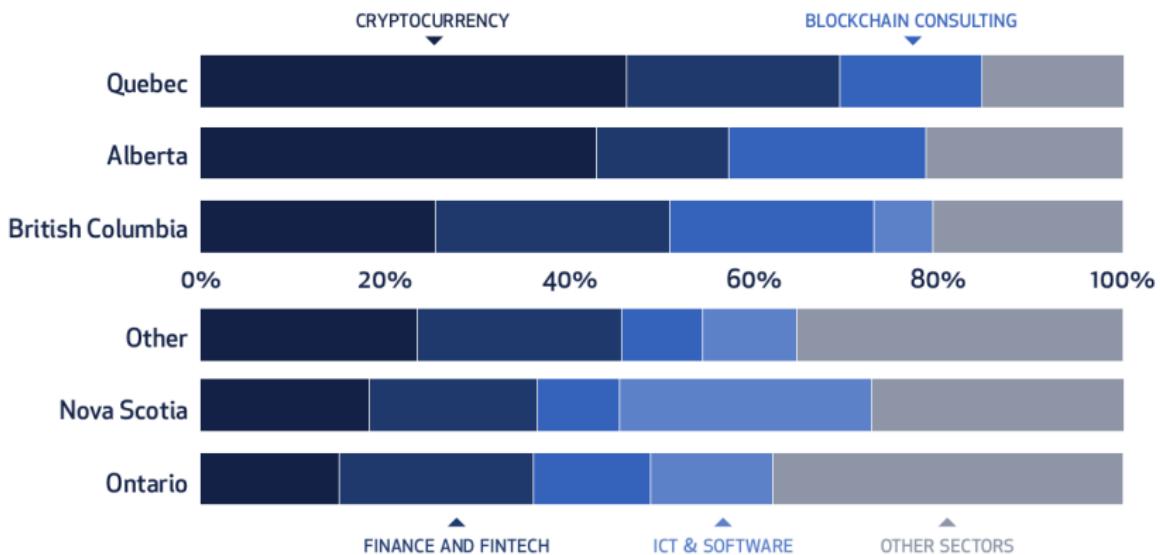


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# Regional expertise



Source: ICTC Note: Based on number of headquarters based in province, several provinces & territories excluded due to low sample size, sample size differs by province



# Regional expertise

## Canada's Blockchain Hubs

Fast facts about our regional centers of expertise



Blockchain v. Cryptocurrency  
Company HQ in Province



Blockchain, Bitcoin, Ethereum, Hyperledger  
Relative Meetup Size Within Province

Most Blockchain  
Meetup Members  
in Canada  
(unadjusted)



GTA  
&  
Ottawa

Blockchain-related Employees Studied:  
In-province, Out-of-province, Internationally



Regional Ecosystem  
(ICTC Interviewees)

Fintech  
Vibrant  
Government  
Digital Identity  
Ethereum  
Advanced  
Indy  
Data Processing



Canada's 3 Largest  
Meetups (adjusted  
for population)



Vancouver  
&  
Victoria

Diverse  
Commercial  
Active  
Fabric  
Indy  
Cryptocurrency  
Supply-chain  
Open-Source



Highest %  
Attendance at  
Hyperledger Meetup  
(Montreal, Aug  
2019)



Montreal  
&  
Quebec City

Blockchain & AI  
Mining  
Bitcoin  
Libertarian  
Cypherpunk  
Music & Gaming  
Cultural Industry  
Crypto-focus



Biggest Blockchain-  
related Meetups in  
Prairie Provinces



Calgary  
&  
Edmonton

Industrial  
Organized  
B2B  
Mining  
Bitcoin  
Private  
SCM  
Oil & Gas  
Commercial  
Indigenous Rights



Highest % Attendance  
at Blockchain Meetup  
(Halifax, Aug 2019)



Halifax  
All data  
Aug 2019

Enterprise  
Encouraging  
New  
Startups

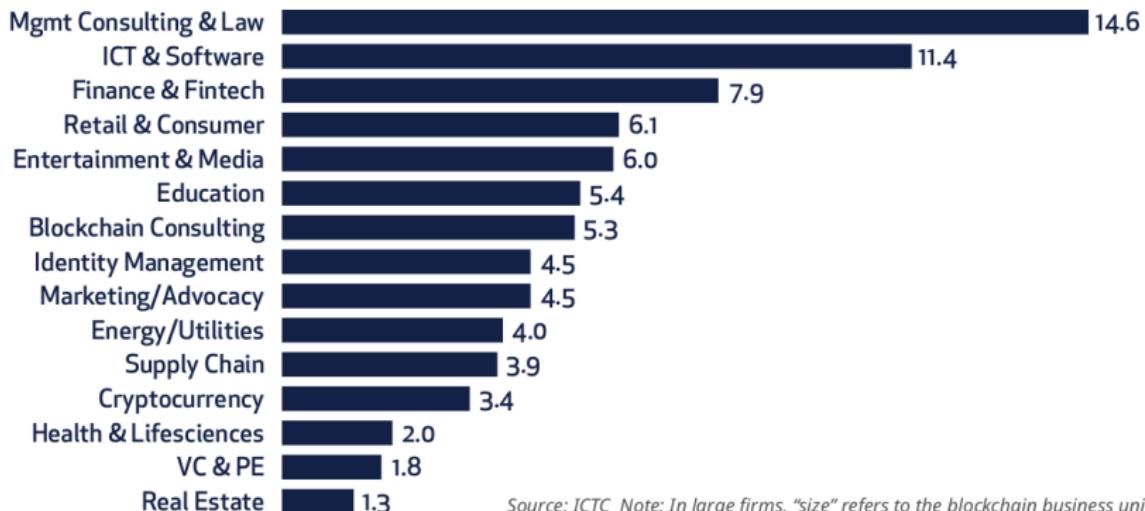


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# Worker occupation per sector



Source: ICTC Note: In large firms, "size" refers to the blockchain business unit

Figure: Average number of Blockchain workers per company or Blockchain business unit, by Industry (Canada, 2019)



# Top developer jobs in Blokchain

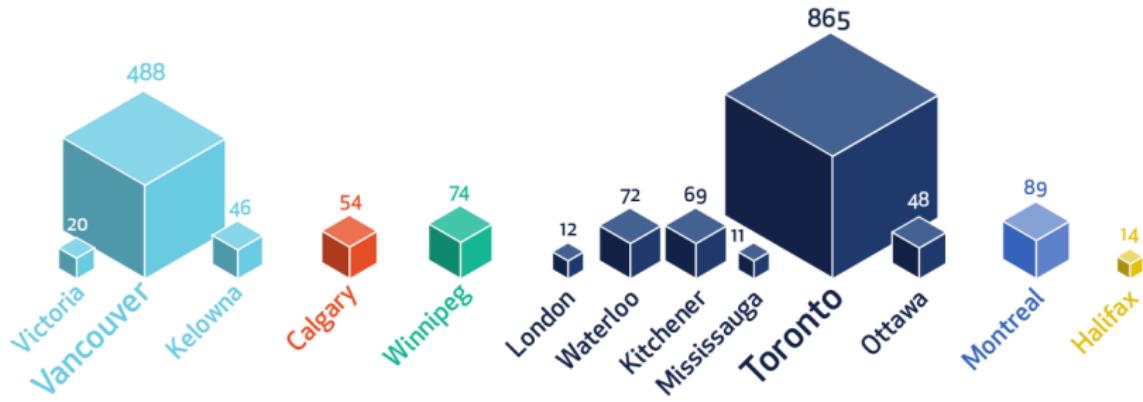
Figure 20: Frequency of Developer Jobs

		Frequency of Developer Jobs				
		1	9	18	27	36
Software Developer	Core Developer	Blockchain Development Lead	Full Stack Solidity Developer	Senior Blockchain Developer		
Full Stack Developer	Full Stack & Blockchain Developer	Blockchain Development Manager	iOS Developer	Senior Development & Integration Lead		
Blockchain Developer	Junior Blockchain Developer	Blockchain Software Developer & Researcher	Junior Developer With JavaScript & Web Services	Senior Development Manager		
Developer	Junior Blockchain Developer	Cloud Transformation	Lead Android Developer	Senior Front End Developer		
Front End Developer	Mobile Application Developer	Creative Developer	Lead Blockchain Developer	Senior Full Stack		
Lead Developer	AI Developer	CTO/Core Developer	Lead Developer Team	Senior Full Stack Developer		
Senior Software Developer	Application Blockchain Developer	Developer Success	Lead Front End Developer	Senior iOS Developer		
Web Developer	Application Development Associate Manager	Development Lead	Natural Language Processing Developer	Senior Software Developer & Product Lead		
Full Stack Blockchain Developer	Application Development Specialist	Development Manager	Product Development	Senior Software Development Manager		
Senior Developer	Applied Blockchain Research & Development Engineer	Director of Software	QA Automation Test Developer	Senior Solidity Developer		
Senior Mobile Developer	Back End Developer	Enterprise Solutions Developer	QA Automation / Web Developer	Senior Web Developer		
Application Developer	Back End Web Developer	Ethereum Blockchain Developer	Quantitative Developer	Senior Project Manager		
Blockchain Software Developer	Blockchain Application Developer	Full Stack Developer Intern	Senior .Net Developer	SRE Lead		
Blockchain Solution Developer	Blockchain Application Developer	Full Stack Software Developer	Senior Back End Developer	Web Project Management		

Source: ICTC



# Follow the jobs



Source: ICTC, Emsi Note: Search keyword logic is (hyperledger OR ethereum OR corda OR solidity OR ASIC OR bitcoin OR hashrate OR DApp OR ICO OR litecoin OR ledger) AND (blockchain OR cryptocurrency OR distributed ledger)

Figure: The total number of jobs posted in each city from November 2017 to August 2019



# Skills in high demand

## Top Ten Skills Extracted from Technical Blockchain Job Postings

- 1 Blockchain
- 2 Cryptocurrency
- 3 Ethereum
- 4 JavaScript, React.js
- 5 Agile Software Development
- 6 Java
- 7 Python
- 8 Hyperledger
- 9 Node.js
- 10 Application Programming Interface

## Canadian Interviews & Focus Groups (order not significant)

- Blockchain or Protocol-Level Experience
- Full-Stack Development
- Smart Contract Programming
- Experience with Enterprise-Scale Deployment & Legacy System Integration
- Back end software development
- Game Theory & Economics
- Database Management & Architecture
- JavaScript & Node.js
- User Experience Design
- C++ Development

## CONSENSYS Blockchain Developer Job Kit

- Cryptography<sup>\*\*</sup>
- Blockchain Knowledge<sup>\*\*\*</sup>
- JavaScript
- Python
- Solidity
- Back end languages<sup>\*\*\*\*</sup>

## LinkedIn 2018 U.S. Emerging Jobs Report<sup>55</sup>

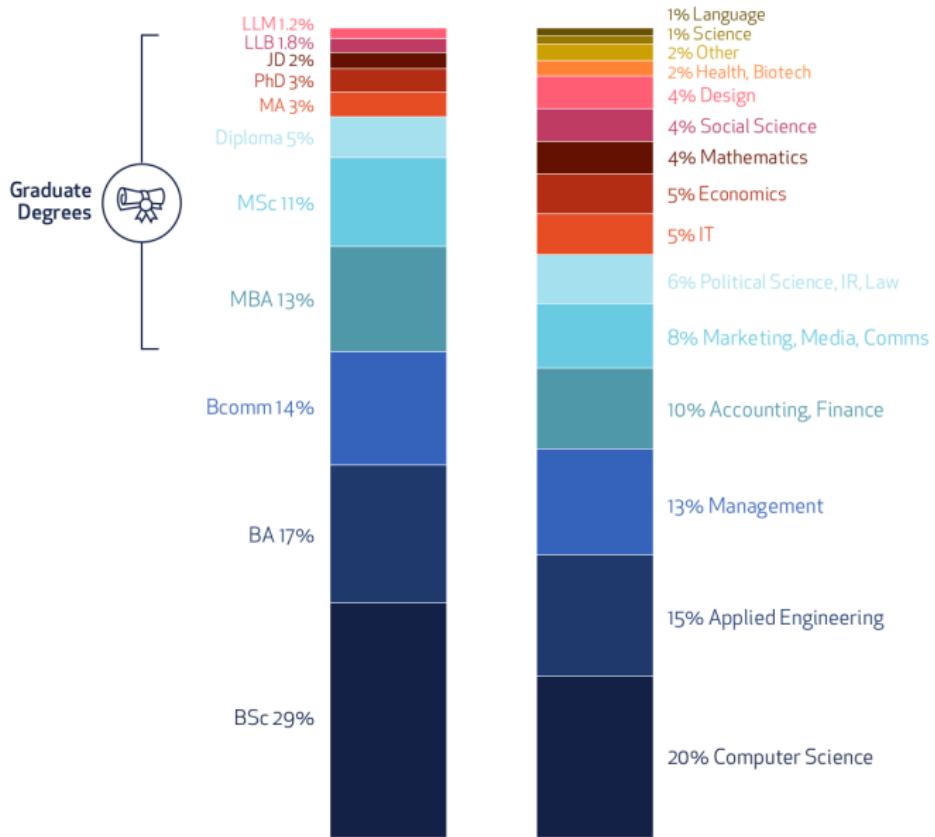
- Solidity<sup>\*</sup>
- Blockchain
- Ethereum
- Cryptocurrency
- Node.js

\* See Appendix I for a discussion of methodology.

\*\*Specific skills in Cryptography for ConsenSys include: Public Key Encryption; Private Key Encryption; Key Agreement/Exchange; Digital Signatures; Hash Functions; Ring Signatures; Zero Knowledge Proofs; Encrypted Storage; Elliptic Curve Encryption; and Trusted Execution Environments.

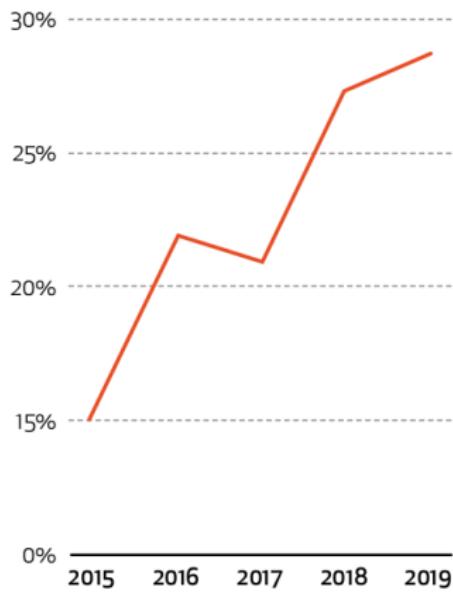


# Education



# Aiming for parity

**Figure 22a:** Percent of Female Blockchain Workers by Year (Canada)



Source: ICTC



Photo: credit goes to Thought Catalog (Unsplash)

↪ ICTC-CTIC retweeted



Margaux Miller 🎙 Start Podcast @... · 1d ✅

Hiring a summer student in STEM?

@ICTC\_CTIC has a program to cover up to 70% of the student's salary, for a max of \$7,000! #WomenInSTEM #ICTC Read more: [wil-amt.digital/en/](http://wil-amt.digital/en/)



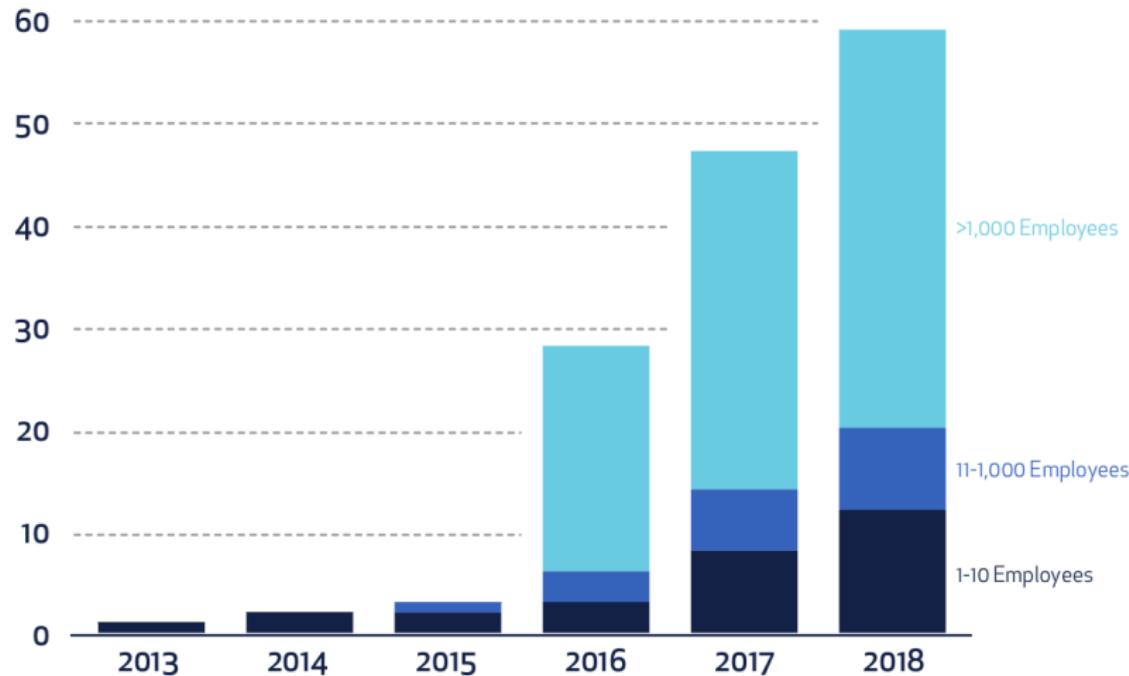
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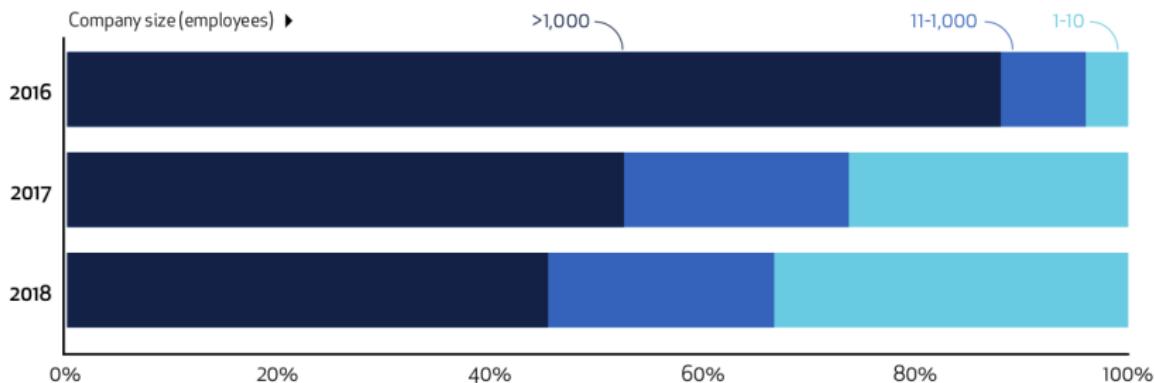
# Creation of Intellectual Property

Cumulative Canadian Patents by Company Size (total)

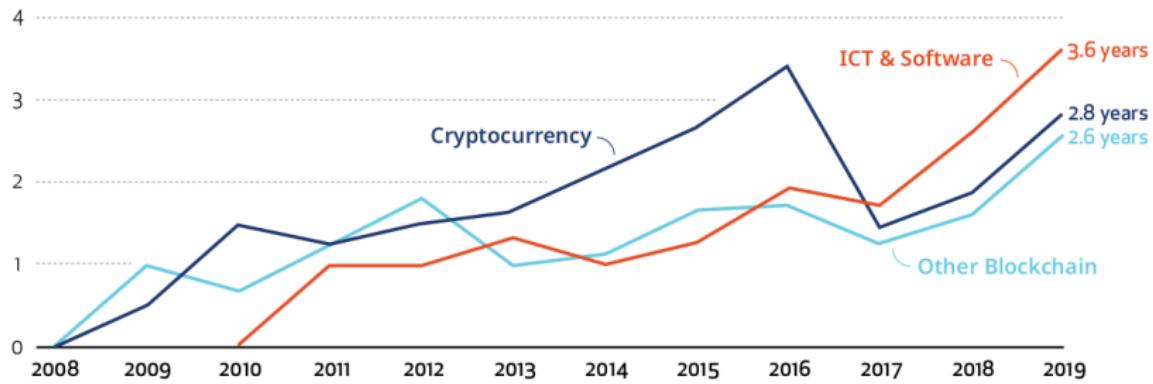


Source: ICTC Note: 2018 value is likely underestimated due to slow patent processing

# Smaller firms are gaining ground on creating Intellectual Property



# Startups are maturing

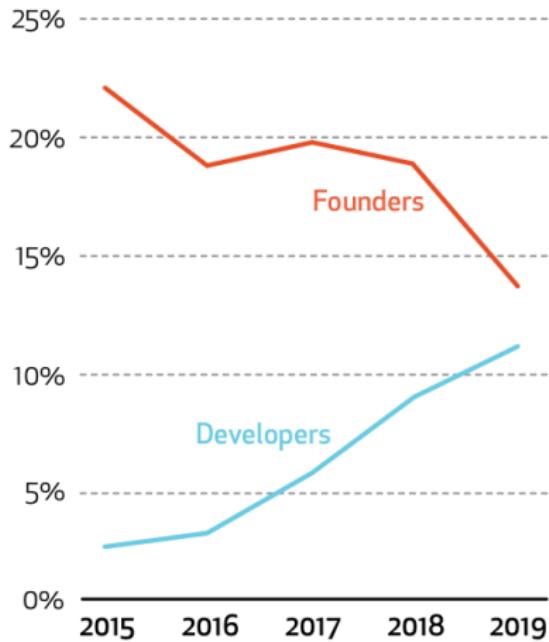


Source: ICTC Note: 2019 value is based on first half of year

Figure: Average age of Blockchain firms funded after 2008 (Canada)



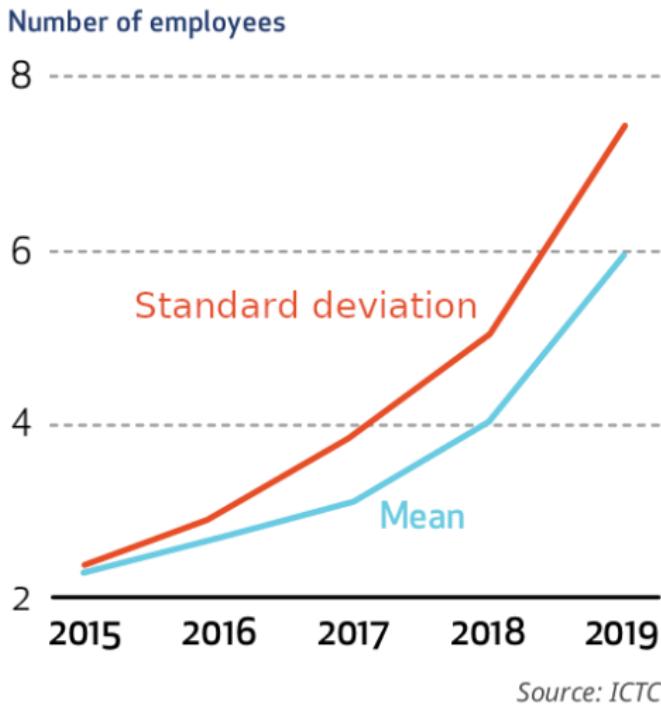
# Startups are maturing



Source: ICTC



# Startups are maturing

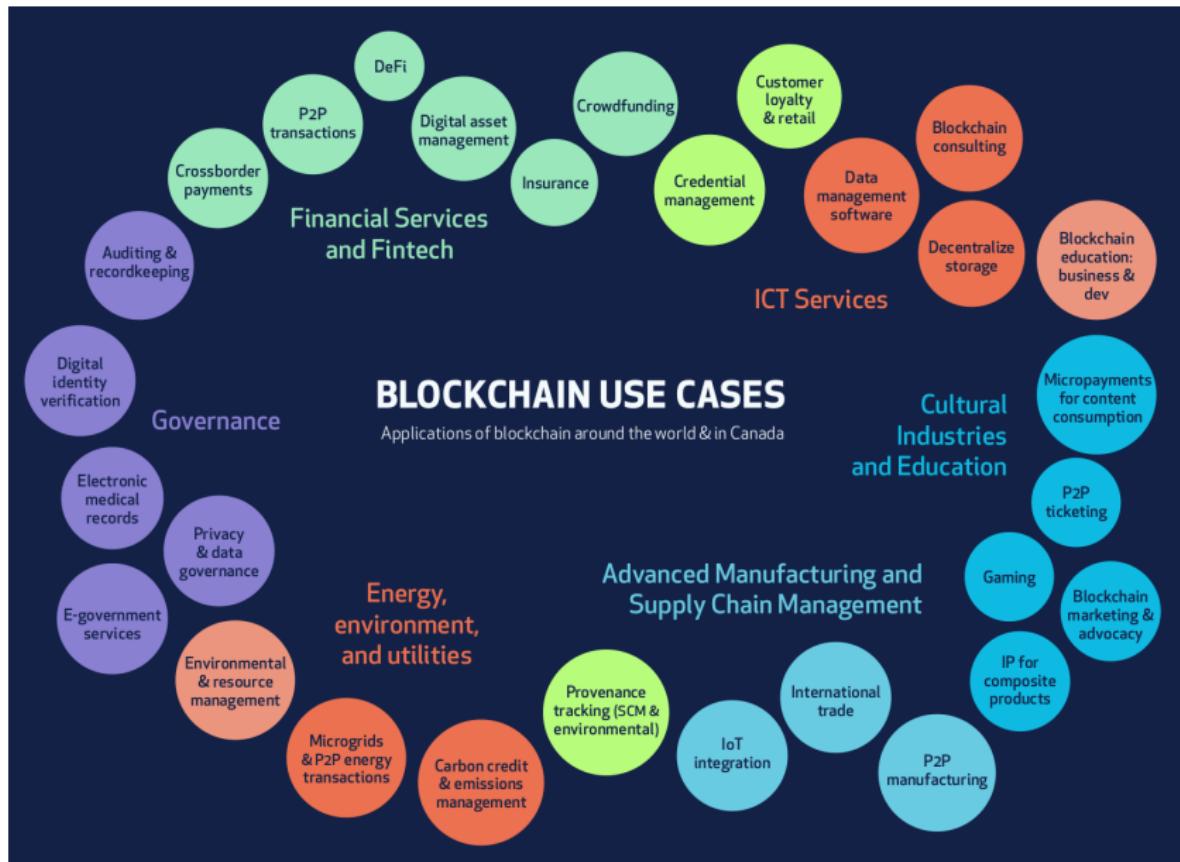


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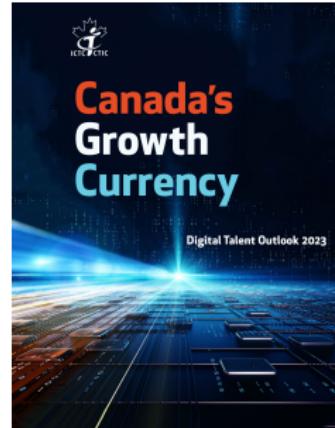
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# Expansion of Industry applications



# Growth sectors and talent pull



Canada's demand for digitally-skilled talent is expected to reach 305,000 by 2023, for total employment of over 2 million in the digital economy.



# Learning: Blockchain Developer Certificate



George Brown College to launch first Canadian blockchain development program, addressing urgent developer shortage

<https://www.georgebrown.ca/releases/george-brown-college-launches-first-canadian-blockchain-development-program.aspx>

## Blockchain Development Program (T175)

2019-2020    2020-2021

Overview

Full Description

Courses

Career & Postgraduate Study Opportunities

Tuition and Fees

How to Qualify and Apply

Contact Us

Recognizing the rapid change and digital disruption that blockchain has caused, George Brown College's **School of Computer Technology** is the first Canadian college to offer a certificate in Blockchain Development.

This unique Blockchain Development program at George Brown College in Toronto focuses on designing and implementing decentralized applications by leveraging blockchain technology. The three-semester program is designed to also thoroughly cover full stack development to give students all the tools they need to succeed in this emerging and exciting field.

**APPLY NOW**

DOMESTIC STUDENTS

INTERNATIONAL STUDENTS

<https://www.georgebrown.ca/programs/blockchain-development-program-t175>



# Driving talent to the Financial Services industry

PRESS RELEASES

## Upskilling Canadian Post Secondary Students While Strengthening The FinTech Industry

<https://www.ictc-ctic.ca/upskilling-canadian-post-secondary-students-strengthening-fintech-industry/>



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Hamoni, R., McLaughlin, R., & Rice, F. (2019). *Building canadian consensus: Our maturing blockchain ecosystem.* Information and Communications Technology Council (ICTC). Ottawa, Canada. Retrieved from <https://www.ictc-ctic.ca/wp-content/uploads/2019/12/canada-blockchain-ecosystem-2019.pdf>



# Thank you

## Contact details

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