

Blockchain and Emerging Financial Technologies: Positioning British Columbia as a Global FinTech Hub

**An Advantage BC Report
In partnership with HQ Vancouver**



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Positioning British Columbia as a Global FinTech Hub – The Study

Vancouver is ranked among the world's major financial centres, and has a dynamic and evolving FinTech and start-up ecosystem that has the potential to expand in the years ahead. Innovation and global competitiveness is key to maintaining and growing the economic ecosystem.

This type of business will be global, borderless and could be located anywhere. Why not in British Columbia?

This study, commissioned by AdvantageBC, sets out to discover the competitive drivers to build and further develop the ecosystem that supports Vancouver, BC — and Canada — as a FinTech hub.

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Congratulations

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For being an Author of
The FINTECH Book!



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MaRi established her career as a chartered accountant specializing in external and internal audit in financial services, including credit and operational risk for large capital investment projects, treasury reporting and internal compliance to financial regulatory systems. A governance, risk and change management expert, MaRi is a member of the [Global Association of Risk Professionals \(GARP\)](#) Blockchain Risk Research Group (BRRG)

steering committee researching topics related to risk applications of the Blockchain. An executive consultant experienced in strategic business design, innovation and business transformation, MaRi has been actively involved in FinTech and Blockchain technologies since 2013, advising startups including the SFU Bitcoin club. As an early adopter she highlighted the potential of [cryptocurrency and blockchain](#) to organizations such as the Deloitte Innovation Council in Canada at a time when the firm still considered it an outlier technology. MaRi was the architect and lead the development of a distributed organizational strategic design, execution and performance management platform openaxyz deployed by Barclays and a number of other enterprises internationally which earned her a nomination as MaRs/RIC Innovation Idol in Ontario in 2012.

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DigitalFutures is an independent strategic business and investment advisory service and incubator that brings to bear many decades of deal shaping and making to the world of digital currencies, Blockchain and financial technologies fuelling the growth of the digital economy. DigitalFutures advises government, enterprise and startup companies innovating and developing technologies and services with high growth potential in global markets.

DigitalFutures is passionate about creating sustainable futures in which everyone can participate equitably and fairly, and with respect for our environment.

1. EXECUTIVE SUMMARY

Vancouver is ranked among the world's major financial centres, and has a dynamic and evolving FinTech and startup ecosystem that has the potential to expand in the years ahead.

A key factor in differentiating Vancouver from other finance and business centres such as London, New York, Silicon Valley, Singapore, Hong Kong, Australia and other leading global FinTech centers, is its location within the North American trading zone (the largest in the world) and, on the west coast of North America, being within easy reach of both the Pacific Rim and European markets.

Vancouver is also a very diverse and cosmopolitan global city, ranking 3rd on the [2015 Global Liveability Index](#) (Economist Intelligence Unit), and has become a sought after destination. In addition to this natural advantage, Vancouver also attracts emerging Fintech organizations with its favourable regulatory and tax regime, business friendly ecosystem, stable economy, and growing pool of talent and funding.

Technology and related FinTech ventures have also become a focus at other emerging BC innovation centres such as Kamloops, Kelowna and Victoria.

What Vancouver and BC does to support investment in and the growth of the FinTech industry in the short term will critically and positively affect its future as a FinTech and Blockchain centre. Innovation and global competitiveness are key to maintaining and growing the economic ecosystem.

Vancouver is also well positioned to take advantage of falling trade barriers (e.g. the recent Canada-Korea Free Trade Agreement), especially with Pacific Rim countries. Under the auspices of potential organizational structures to support for a FinTech Hub in Vancouver, both the city and the Province of BC should consider reaching out to other global hub jurisdictions to explore collaborative agreements.

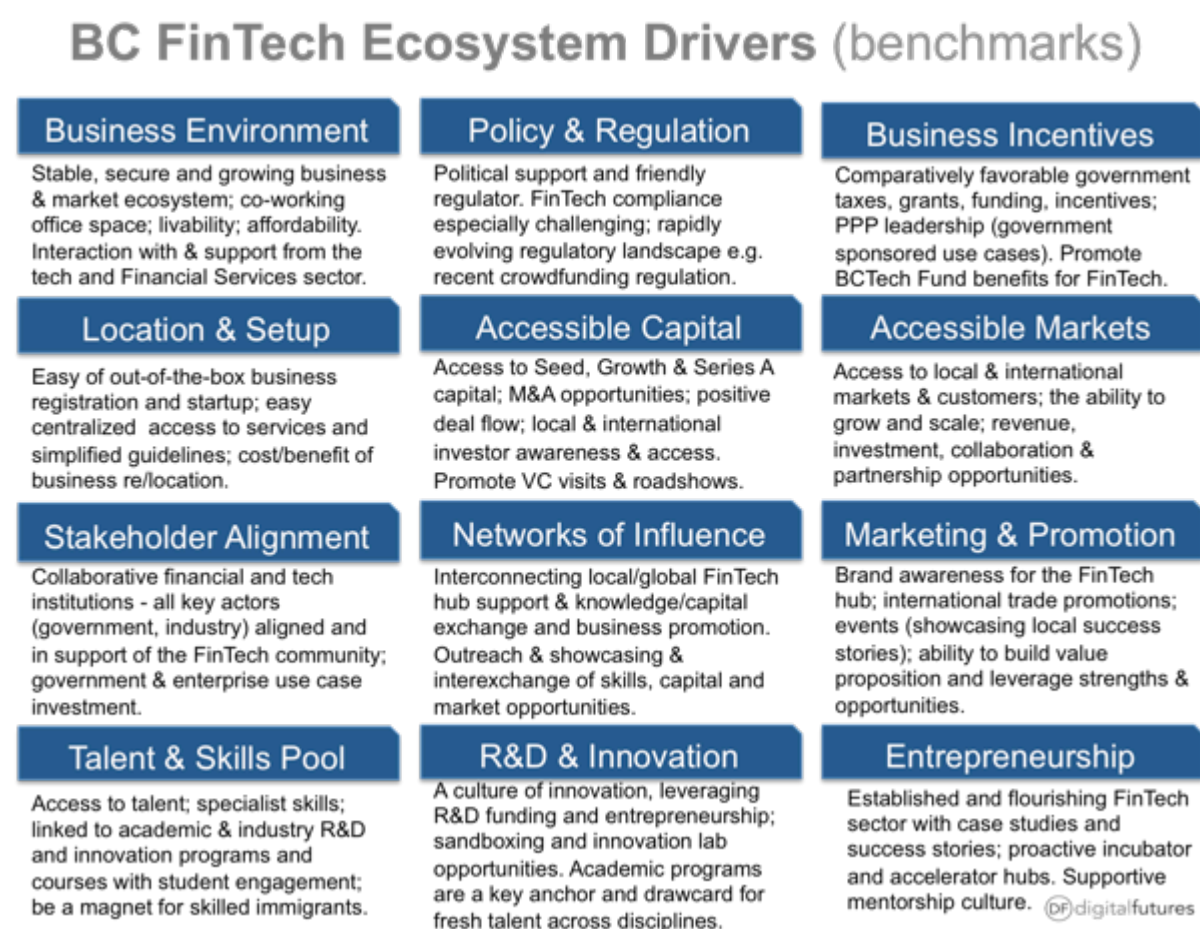
The growing influence and rapidly multiplying Blockchain-related applications across industries - in banking, exchanges and payment systems, supply chain management, accounting and auditing, to name a few --- should not be underestimated. Financial sector and government leaders around the world, including those in Canada, are moving fast to understand and determine how the Blockchain and other emerging Fintech tools can be integrated into their current and future business models. There is a sense, especially in the financial services community, that developments in the FinTech space are leading us toward a paradigm shift in the way we conduct and process, verify, and audit global transactions as well as other elements of our international financial protocols and processes.

In the last two years there has been dramatic global growth in new FinTech start-ups, and many of the major global financial institutions - Barclays, JP Morgan, State Street, UBS, Royal Bank of Scotland, Credit Suisse, to name a few - have begun partnerships or initiatives aimed at building out elements of Blockchain and other FinTech technologies into their business plans. The same is true with the professional services, credit card, lending, and global payment industries. While

most experts in this area still don't know exactly what the end products might look like or how they would work, they agree that this will be big business.

This type of business will be global, borderless and could be located anywhere. Why not in British Columbia? This study, commissioned by AdvantageBC, sets out to discover the competitive drivers to build and further develop the ecosystem that supports Vancouver, BC — and Canada — as a FinTech hub.

Figure 1: Key FinTech ecosystem drivers



2. THE GLOBAL FINTECH LANDSCAPE

Competition in the global FinTech sector is clearly intensifying, as governments and private sector players seek to increase their presence and investment into this emerging business. The benefits of developing a FinTech ecosystem include:

- Creating economic resilience during dynamic and uncertain socio-economic times
- Helping businesses become more productive
- Aiding people in finding new jobs and developing new skills
- Enabling government to deliver better public services; and
- Ensuring equal opportunity for all to participate in the economic future of their country.

According to a study by the global accounting firm PWC study, on surveying the FinTech ecosystem in the Gulf Cooperation Council (GCC) countries “Financial Technology (FinTech)” “eco-systems” have stimulated technological innovation, made financial markets and systems more efficient, and improved the overall customer experience. These eco-systems have shown that they can energize the broader local economy by attracting talented, ambitious people and become a focus of creative thinking and business activities.”¹

Financial services are a substantial economic driver for the world’s leading established and emerging FinTech centres. They are leveraging their strengths and benefits, or are finding niche areas that they can exploit to support their existing own value propositions. At the same time, the global financial sector is experiencing huge disruption at the convergence of technology, finance, social media, the internet, mobile communications, digital currencies and Blockchain technologies:

The FinTech centres are drawing on a number of value enablers to support their strategies, including:

- Accessible early stage funding for FinTech startups and a strong pipeline of opportunities for investors/Venture Capital (VC) funds;
- Increased depth of financial services and technology talent ‘on location’;
- Robust financial services industry with a vibrant technology start-up community with mentoring, networking and high visibility;
- Government and regulatory support for the FinTech sector (and increasingly now digital currencies and Blockchain) and the supporting professional services (Regulation Technology, or RegTech); and
- Business backing for a FinTech hub, with high levels of collaboration and nurturing a culture of knowledge sharing and entrepreneurship, which also acts as a conduit for enquiries, business support and mentorship.

¹ What is FinTech? PWC Strategy Report: Developing a FinTech ecosystem in the GCC: Let’s get ready for take off.

² Accenture: Global FinTech Investment Growth

The FinTech growth opportunity

Globally, FinTech innovation now impacts all aspects of the financial services value chain, attracting substantial investment growth: “Global FinTech investment in 2015 grew...to \$22.3 billion in 2015” (Accenture).²

The Blockchain shared ledger technology, such as platforms launched recently by IBM and Microsoft, and with applications already under development by all major Canadian banks and telcos, and 40 plus leading international financial and IT services providers, extends even further into applications such as: the Internet of Things; machine-to-machine learning; digital identity; compliance; “Know your Customer” (KYC); anti-money laundering and fraud prevention platforms; land registries; digital currencies for government to support health and pension services delivery; insurance; wealth management (robo-advisors) and alternative finance (crowdfunding, peer-to-peer lending, etc.).

To date, venture capital funding in Blockchain start-ups is well over \$1 billion³, and major institutions and governments across the world are scaling up investment, according to Coindesk.com.

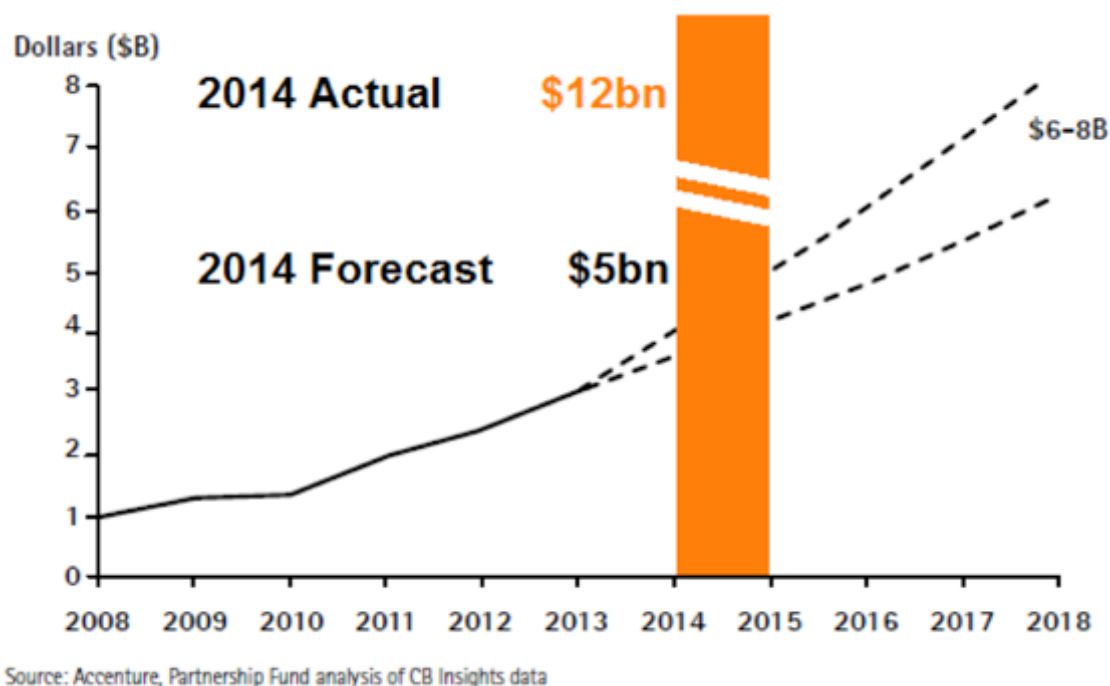


Figure 2: Global FinTech investment will more than double in 2018

² Accenture: Global FinTech Investment Growth

³ State of Blockchain (Coindesk Report)

3. THE CURRENT FINTECH LANDSCAPE IN CANADA

The digitalization of the global economy is growing at a phenomenal rate, impacting and challenging the way we conduct financial transactions. One study has suggested that if the spread of digital technology in finance and rising prosperity continues at its current pace, global financial flows will triple by 2025, boosting economic growth. (McKinsey Global Institute Report, 2014.)⁴

The digitization of the financial sector is transformative, because it reduces costs of services and distribution, while creating purely digital financial products and services — some of which are entirely new, and others which may not be new but are delivered on international digital platforms that are new. These technological changes create significant opportunities for new financial technologies in Canada, as well as many new opportunities in both the private and public sectors, to drive growth and innovation.

These changes also put pressure on governments to consider how their economies should participate, how they can and should enable participation through the right business environment and regulation, and how they can capitalize on the global shift to a digital finance environment. New investments and focused policies are needed to embrace the increasing digitization of finance, as well as the consideration of a wide-range of untested issues such as the application of digital currencies and Blockchain (distributed ledger technologies).⁵

Currently, there are no globally recognised international regulatory regimes or infrastructures that directly address the regulation of digital finance, including how machine-to-machine digital financial transactions will be governed in the ‘Internet of Things’ world. This means Canada (and by implication BC) has an opportunity to step in and take a leadership role in this emerging area.

The current status of “digital currency” in Canada

The use of cryptocurrencies has resulted in a range of new business opportunities. The following key points were captured in the 2015 Canadian Standing Senate Committee on Banking, Trade and Commerce (#BANC) report “Digital Currency: You Can’t Flip This Coin”⁶ as to how Blockchain technology can allow individuals to control and manage their security and online identity:

- Reducing the need for intermediaries in the payments system that enables lower transaction costs; and
- Bringing improved financial services to developing countries.

The Senate committee’s report suggested that the federal government — when considering any legislation, regulation and policies — should create an environment that will foster innovation for digital currencies and their associated technologies and

⁴ Understanding the evolution of the global economy. McKinsey Global Institute Report 2014

⁵ The Regulation of Virtual and Crypto Currencies – A Global Overview

⁶ Digital Currency: You Can’t Flip This Coin. Report by the Standing Senate Committee on Banking, Trade and Commerce (#BANC); Parliament of Canada: June 12, 2015

consider the use of Blockchain technology, when it is advantageous, to deliver government services. It also suggested the government should strive to enhance the security of private information in collaboration with other countries to formulate global guidelines for digital currencies.

Further, the Senate committee suggested that the Minister of Finance convene a roundtable with stakeholders, including banks, to look for solutions to the lack of access to banking services for digital currency related businesses, while recognizing the requirements of Canada's anti-money laundering and anti-terrorist financing regime. Further, through appropriate federal entities, the committee recommended that the government provide concise information to the public about the risks of digital currencies and alternative payment systems. It suggests the goal should be to inform Canadians about the tax obligations of digital currencies when received as income, held as an investment, or used to purchase goods or services.

The report concluded: "One of the key drivers for the FinTech industry is that the development of new technologies in the financial sector, such as purely digital financial products and their delivery through international digital platforms, reduces the cost of financial services and their delivery".

It is clear that these are all key drivers for emerging FinTech startup ventures and traditional finance adoption. Embracing these ideas will be foundational to growing BC's, and Canada's, FinTech ecosystem.



Canada FinTech Ecosystem Overview

Regulator: The supervision of federally regulated financial institutions is conducted by the Office of the Superintendent of Financial Institutions (OSFI).

The federal system of deposit insurance is operated by the Canada Deposit Insurance Corporation.

The Financial Consumer Agency of Canada (FCAC) works to inform and protect consumers of financial products and services.

Together with the Department of Finance, OSFI, CDIC, and FCAC, the Bank of Canada participates in the **Financial Institutions Supervisory Committee (FISC)**.

FINTRAC: The Financial Transactions and Reports Analysis Centre of Canada (FINTRAC) is Canada's financial intelligence unit. Its mandate is to facilitate the detection, prevention and deterrence of money laundering and the financing of terrorist activities, while ensuring the protection of personal information under its control.

BC Securities and Exchange Commission: The BCSC is the independent provincial government agency reporting to the Legislature through the minister responsible for the administration of the Securities Act. Being a crown corporation gives it the independence and flexibility needed to regulate a dynamic market. It is self-funded, which means that the cost of securities regulation is borne by market participants, not taxpayers.

Initiatives:

- Limited regulatory initiatives specifically aimed at engagement with, and support of, FinTechs.
- The Canadian Senate conducted hearings in digital currencies with no formal follow up process from the federal government to date.
- The Government of Ontario hosts the MaRS FinTech hub as a central resource for services, funding and innovation support.
- BC has recently sponsored a FinTech hub at the BC Tech Association (formerly the BCTIA) and Innovation Centres in Vancouver, Kelowna and Surrey.
- On December 8, 2015, the BC Government announced the creation of a new \$100m BC Tech Fund which local FinTechs can access.
- A range of tax incentives, grants, funding, and R&D support is available to FinTech startups.

Canadian Trends in FinTech (and Financial Services)

FinTech “ecosystems” have stimulated technological innovation, made financial markets and systems more efficient, and improved the overall customer experience. These ecosystems — composed of governments, financial institutions, and entrepreneurs — have also shown that they can energize the broader local economy by attracting talented, ambitious people and becoming a locus of creative thinking and business activity. The four key design elements necessary for evolving FinTech ecosystems are: the business environment and access to markets; government and regulatory support; access to talent and capital; and financial and technology expertise.

Canadian Banks 2016 - Embracing the FinTech Movement⁷

Canada’s financial institutions are already embracing, or at least preparing for, the FinTech future. In its report, *Blurred lines: How FinTech is shaping financial services*, PWC states that “New digital technologies are in the process of reshaping the value proposition of existing financial products and services. While we should not underestimate the capacity of incumbents to assimilate innovative ideas, the disruption of the financial sector is clearly underway. And consumer banking and payments, already on the disruption radar, will be the most exposed in the near future, followed by insurance and asset management.”⁸

⁷ Canadian Banks 2016 - Embracing the FinTech movement, PWC

⁸ Blurred lines: How FinTech is shaping financial services: - PWC Global FinTech report, March 2016

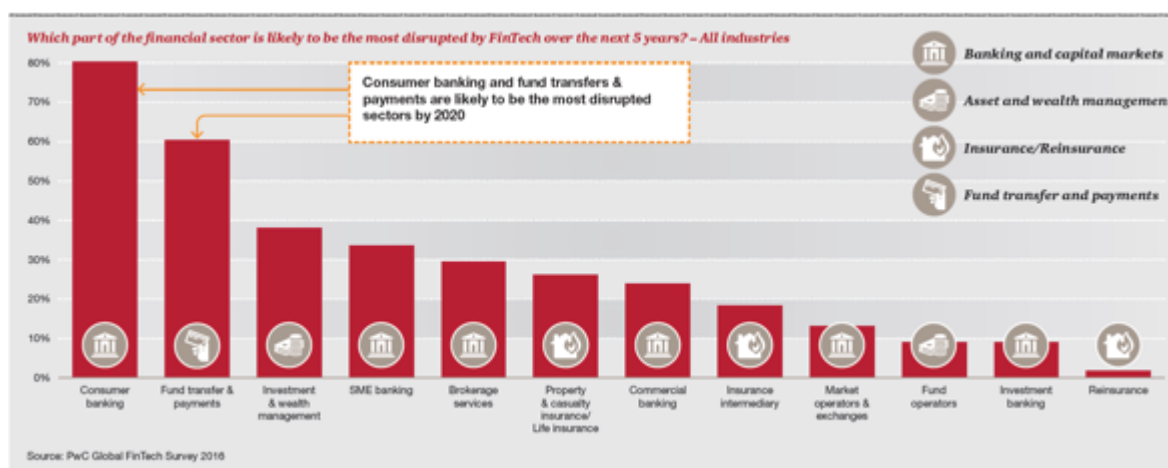


Figure 3: Which part of the financial sector is likely to be the most disrupted by FinTech over the next 5 years? – All industries

Regulation Technology (RegTech)

RegTech covers a range of professional service providers engaging with the FinTech space from legal advisors; taxation, auditing and accounting; identity management; cyber security; regulators; consumer protection, compliance (KYC, accreditation and validation) and security (Anti-Money Laundering, or AML, and fraud prevention) agencies; and policymakers and regulators.

This is especially pertinent for Canadian (and BC) companies who have to deal with regulatory and policymaking bodies when trading and investing across the border into the USA and other international jurisdictions.

RegTech applications examples:



Figure 4: RegTech – compliance as a service⁹

Canada has not yet adopted any legislation or regulations regarding Bitcoin and related activities, as, for example, occurred with the issue of “Bitlicence” regulations in New York, effective since June 2015, and which apply to those companies engaged in “virtual currency business activity”. Companies have 45 days to apply for

⁹ RegTech Rising: Compliance as a Services. Celent: February 22, 2016

this license. Applicants are required to have — among other things — AML, KYC, consumer protection and cybersecurity programs, put into place.

On their company website, Vancouver based Trulioo — an identity management company — describes regulation technology, or RegTech, as encompassing “any technological innovation that helps improve efficiency and transparency in regulation. RegTech has come about as a result of the growing need for more effective and efficient means of ensuring that businesses, both traditional and startup, stay compliant in industries facing increased regulatory protocols and complex regulatory transitions. FinTech, is most often associated with RegTech, and is regarded by many as a driving force behind its rapid growth and development.”

In a July 2015 RegTech report, the research company Celent declared “the disruption of finance will be accompanied by innovation to[ward] financial regulation and ultimately to the automation of regulation. There will be much more collaboration and two-way dialogue between regulators and institutions, data collection will be automated, data presentation will become standardized regionally and globally, and open source compliance systems with compliance criteria built into their protocols will encourage greater FinTech participation.”

The emergence of FinTech has disrupted the financial sector, and will disrupt financial regulation as well. The impact on regulators will be driven by:

- A changing marketplace of financial institutions as new companies emerge.
- New business models (such as P2P lending and crowdfunding).
- Rapid change driven by new technology coupled with growth in data and analytics.
- The creation of “Financial Hybrids” as traditional financial firms and non-traditional financial firms begin to merge.”

“Regulators, incumbent financial institutions, and emerging FinTech companies will increasingly leverage technology to move towards real-time financial regulation in a data-rich and analytical manner. There will be shorter and more productive feedback loops between regulators and financial institutions, with a greater level of review of existing regulations to ensure that they remain relevant and effective,” says John Dwyer, senior analyst at Celent and author of the report.¹⁰

Canada Lags in FinTech Adoption Creating Tremendous Room for Growth

While the level of FinTech adoption among digitally active consumers is set to grow significantly, by country comparison, FinTech takeup in Canada is still slow according to Ernest & Young’s ‘FinTech Adoption Index’,¹¹ leaving much room for future growth.

The survey shows that in Canada, 8.2% of digitally active consumers have used at least two FinTech products within the last six months, in the form of money transfers and payments, as well as savings and investments, in comparison to an average of

¹⁰ RegTech Rising: Compliance as a Services. Celent: February 22, 2016

¹¹ EY FinTech Adoption Index: Canadian Findings

15.5% globally. However, if awareness of the available products and services increases, adoption rates could triple within the year.

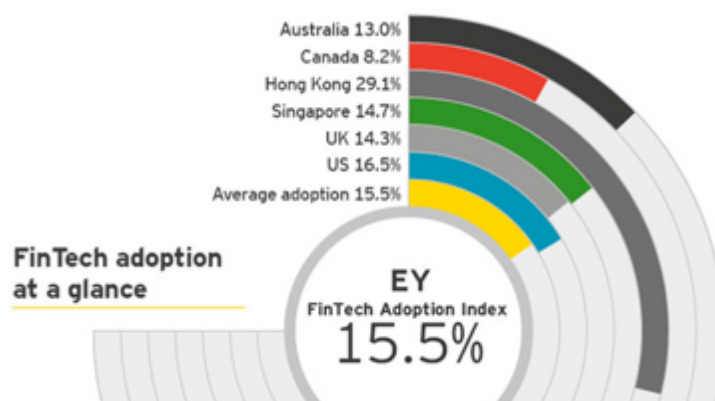


Figure 5: EY FinTech Adoption Index – Canadian Findings

Financial services are mainstreamed and operational across the globe. Disruptive opportunities offered by FinTech therefore pose challenges and opportunities for incumbents and startups.

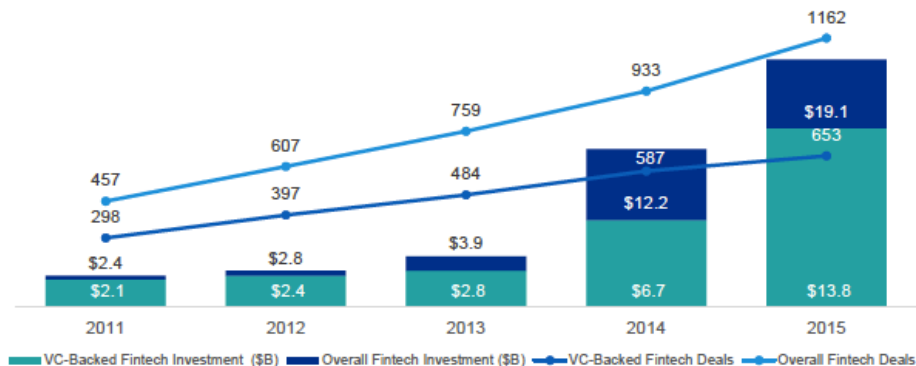
Business Insider: The FinTech Ecosystem Report¹² measures the effects of technology on the entire financial services industry. It sets out the primary reasons why it is important for policy makers to pay attention to FinTech:

- FinTech is disruptive to financial services: it will soon change the nature of almost every financial activity, from banking to payments to wealth management.
- The basic conflict will be between old firms and new — startups are re-imagining financial services processes from top to bottom, while incumbent financial services firms are trying to keep up with new products of their own.
- Both sides face serious obstacles — traditional banks and financial services firms are investing heavily in innovation, but leveraging their investments is difficult with so much invested in legacy systems and profit centers.
- Startups are struggling to navigate a rapidly-changing regulatory landscape and must scale up quickly with limited resources.
- The Blockchain is a wild card that could completely overhaul financial services. Both major banks and startups around the world are exploring the technology behind the Blockchain, which stores and records Bitcoin transactions. This technology could lower the cost of many financial activities to near-zero and could wipe away many traditional banking activities completely.

As the chart below indicates, strong investment indicates strong growth for the FinTech sector for the foreseeable future. Policy makers need to pay close attention to the sector's potential for growth and disruption.

¹² [How Technology Will Affect The Entire Financial Services Industry](#). Source: Business Insider

Annual Global Fintech Financing Trend VC-Backed Fintech Companies vs. Overall Fintech Investment*, 2011 - 2015



*Overall investment includes fintech funding by angel investors, angel groups, private equity firms, mutual funds, hedge funds, VC, corporate and corporate VC investors.

Source: The Pulse of Fintech, 2015 in Review, Global Analysis of Fintech Venture Funding, KPMG International and CB Insights (data provided by CB Insights) March 9th, 2016.

Figure 6: Global Investment in FinTech Companies Totalled US\$19.1 Billion in 2015

Potential Areas To Use FinTech and Blockchain in Canada

FinTech and Blockchain have the potential to be applied to government registries & services, in-app purchases & payment gateways, peer-to-peer lending, and a range of enterprise-level BaaS applications (private/public blockchain services).

Some clear applications include:



Digital Asset Management e.g. Online Entertainment, Media and Services; Smart Properties and Contracts: As assets become digital, a unified network based on blockchain technology can offer an extremely fast, efficient and cost effective decentralized asset registry, register of ownership and transfer platform that does not require a trusted intermediary.



Federated, Tokenized KYC Provenance: KYC and AML compliance is a huge pain point for existing institutions, financial or otherwise. There are opportunities to partner with government and industry to approach the problem of identity provenance more directly, reducing fraud, cost, and friction caused by KYC/AML issues.



Asset Registers and Logistics e.g. Internet of Things (IoT): Applying blockchain technology to the “Internet of Things” in the manufacturing environment; a product can be registered onto a

blockchain, allowing for full supply chain auditability. Suppliers and distributors can rely on these immutable records to prove they aren't receiving counterfeit goods.



Digital Value Exchange e.g. Remittances, Payment Processing, Peer-to-Peer Lending, in App Micropayments, Payment Gateways:

Partnerships with traditional payment companies expose access to the traditional banking world to decentralized applications, allowing the flexibility and resilience of blockchain technology while accessing the liquidity and convenience of consumer payment methods.



Peer-to-Peer Lending: Blockchain technology provides several key advantages to P2P lending and cash management companies. Peer-to-peer lending, running as its own blockchain, will allow new market entrants to outperform larger, traditional companies as a blockchain framework lessens their infrastructure costs and complexity. This integrates with identity as it gives rise to reputational systems (credit scores).



Government Registries, Digital Archiving and Asset Tracking: A decentralised archive utilising the Blockchain as a storage mechanism offers an uncontested space from which records could be accessed. Documents and other sets of data can be time stamped, validated and authenticated by a blockchain. It cannot be erased or modified by anyone: competitors, third parties, or governments.



Financial Services Convergence e.g. Distributed Payment Networks: Blockchain technology's greatest potential is as a platform for global payments networks, to execute transactions that are extremely low-cost, virtually frictionless, and can easily flow across national borders. Blockchain technologies will become an indispensable tool to integrate and manage the convergence of digital banking, mobile transactions and digital currency offerings.

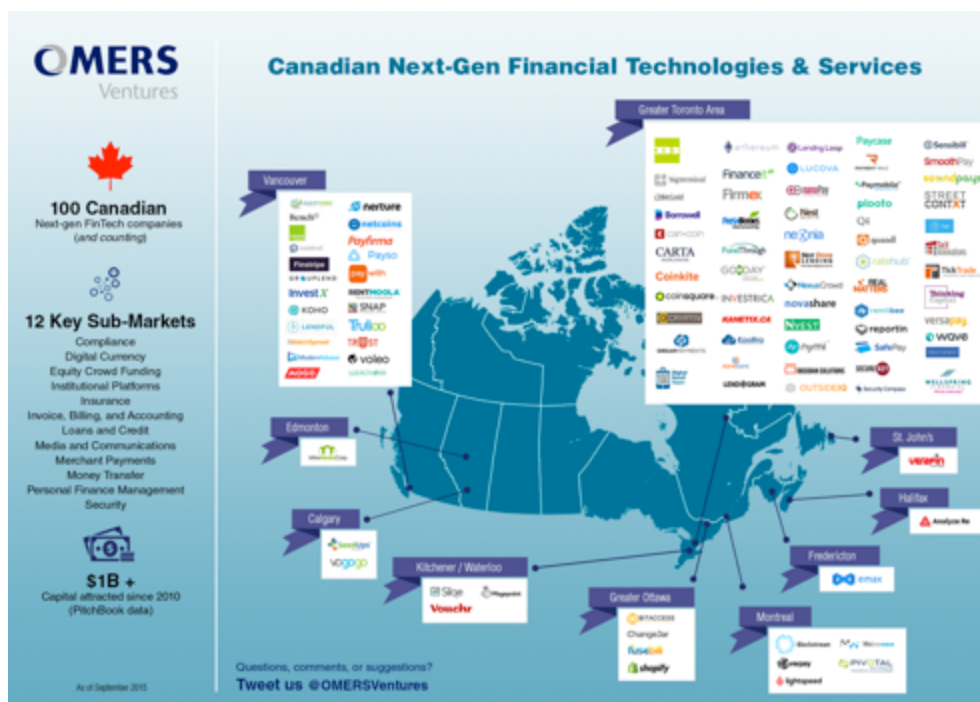


Figure 7: FinTech ventures map of Canada, Omers Ventures¹³

¹³ A Snapshot of Next-Gen Financial Technologies: Omers Ventures: August 26, 2015

4. CURRENT FINTECH LANDSCAPE IN BRITISH COLUMBIA

The BC FinTech Advantage

British Columbia has some of the key factors essential as drawcards for FinTech business and talent to BC. These include:

- **Pool of mentors:** The ability to tap the large and growing tech talent pool and the rich academic, startup incubator and R&D ecosystem.
- **A desirable place to live and start a business:** Top livability score with a strong tech innovation culture.
- **Government support:** The BC government's new \$100m BC Tech Fund, created to help early stage BC tech startups grow, is a statement to the world: British Columbia is going to be a global leader in technology.
- **Accessible startup capital?** Combined with the \$100 million venture capital fund, entrepreneurs referenced the favorable tax regime and incentives.

The emerging BC FinTech ecosystem already comprises of the following key sectors with new and established ventures occupying every segment of the value chain:

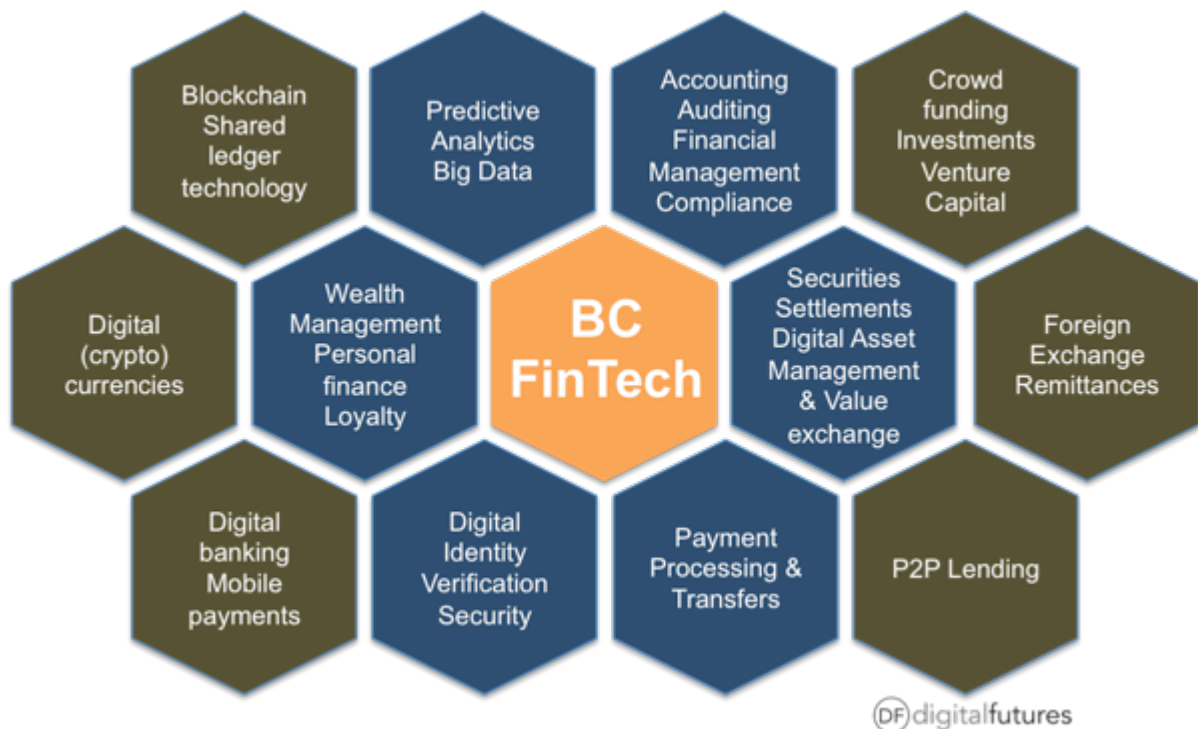


Figure 8: The BC FinTech ecosystem (value chain)

BC FinTech verticals, or business niches, include¹⁴:

- **Lending Tech:** These are primarily peer-to-peer lending platforms, in addition to underwriter and lending platforms.
- **Payments/Billing Tech:** These companies include payments processing, payment cards and subscription billing software tools.
- **Personal Finance/Asset Management:** Such companies help individuals manage bills, accounts and/or credit, assets and investments.
- **Money Transfer/remittance:** Money transfer companies include peer-to-peer platforms to transfer funds between individuals across countries.
- **Blockchain/Bitcoin:** Such companies include software or technology firms in the distributed ledger space, such as Bitcoin wallets, security providers and sidechains/multichains.
- **Institutional/Capital Markets Tech:** These companies provide tools to financial service companies.
- **Equity Crowdfunding:** These are platforms that allow individuals to provide monetary contributions for projects or companies in the form of equity.
- **Insurance Tech:** These companies create online carriers, brokerage and distributional platforms.
- **RegTech:** Automation of regulatory, auditing and compliance processes.

Emerging trends impacting the FinTech industry globally and in BC

The following developments will dramatically impact the shape of future FinTech ecosystems and a range of related digital economy industries:

- Alternative finance technologies, such as crowdfunding and peer to peer lending.
- Blockchain (distributed ledger), Machine to Machine Learning and Artificial Intelligence technologies e.g. IoT, smart contracts.
- Digital currencies (including cryptocurrencies such as Bitcoin) and digital value exchange as key drivers of the global Digital Economy.
- Convergence and integration of digital banking and omnichannel offerings with mobile and digital media.¹⁵

BC's FinTech future

PwC's 'Cities of Opportunity' study finds that there is significant correspondence between a city's economic clout, costs and the ease of doing business.¹⁶ A 2015 Accenture report, 'The Future of Fintech and Banking', points to three key areas of

¹⁴ Pulse of FinTech, 2015 in Review – Global analysis of FinTech Venture Funding, KPMG; Omers Ventures; BC TECH ASSOCIATION Fintech Report; LetsTalkPayments

¹⁵ Blurred lines: How FinTech is shaping financial services: - PWC Global FinTech report, March 2016

¹⁶ Cities of Opportunity, 2014: PWC Global Report

emphasis needed for financial services companies in order to ensure future FinTech success: open innovation, collaboration, and investment.¹⁷

British Columbia, bolstered by its strong tech and financial sectors respectively, is poised for rapid expansion of its FinTech sector.

As highlighted in the recent Profile of BC High Tech Sector 2014 report, the province's tech sector is a key driver of growth for BC's economy, expanding faster than the economy at large. Employing 86,000 people, with an average wage that is 60% higher than B.C.'s industrial average, the sector has a principal role in the BC Jobs Plan.¹⁸

The tech sector has outpaced the overall provincial economy for eight of the past ten years. The 9,000 technology companies in British Columbia in 2013 generated over \$23 billion in combined revenue, adding over \$13 billion to B.C.'s GDP. That same year, more than 700 new technology companies came into existence in the province.

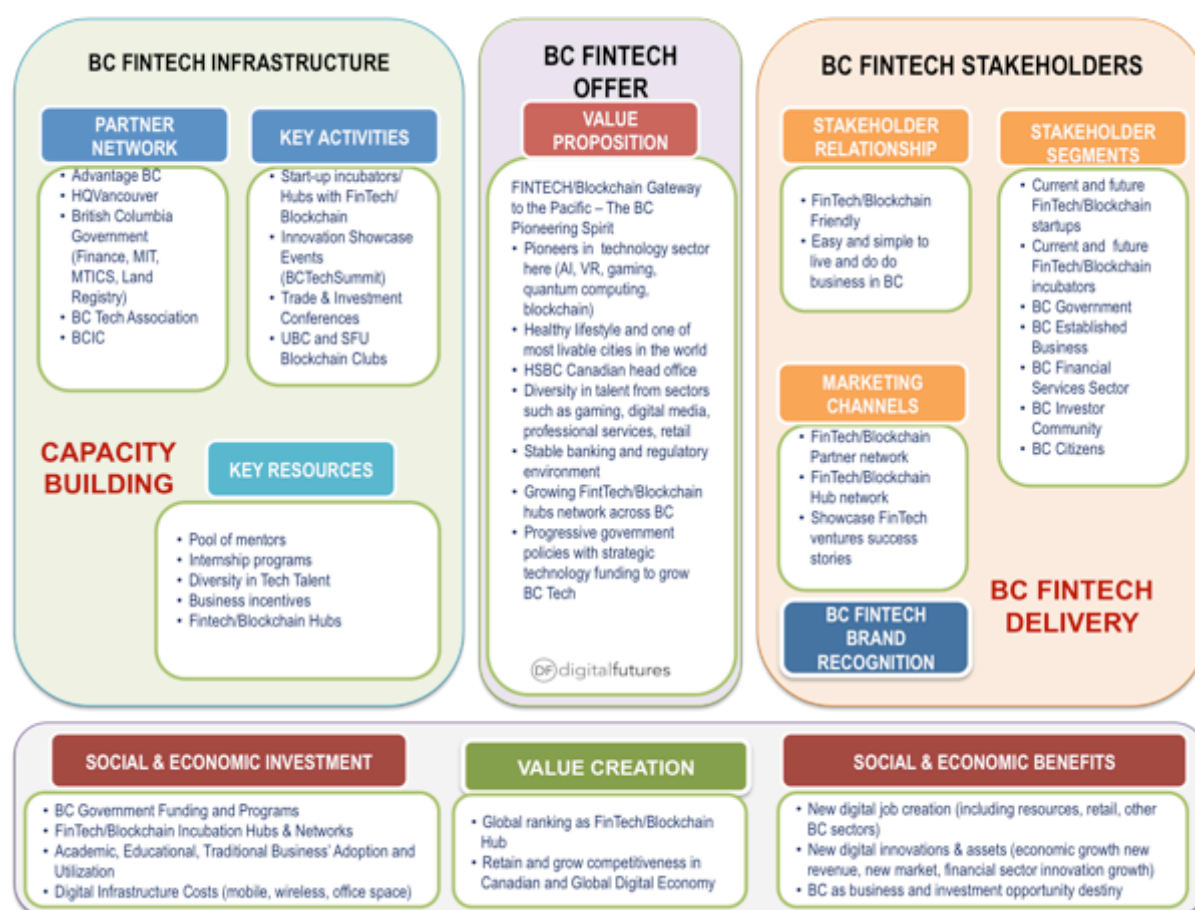


Figure 9: BC FinTech and Blockchain Value Creation Model

¹⁷ The Future of Fintech and Banking: Digitally disrupted or reimaged? Accenture Report 2015

¹⁸ Profile of the British Columbia High Technology Sector 2014

The pioneering spirit of BC FinTech

“BC FinTech can innovate! Vancouver gets world’s first Bitcoin ATM”



Gabriel Scheare uses the world’s first Bitcoin ATM on October 29, 2013 at Waves Coffee House in Vancouver. Scheare said he “just felt like being part of history.” The ATM, named Robocoin, allows users to buy or sell the digital currency known as bitcoins. Once only used for black market sales on the Internet, Bitcoins are starting to be accepted at a growing number of businesses.” (Vancouver Sun)¹⁹

Academic and educational institutions in BC that are at the forefront of the FinTech revolution:

i. SIMON FRASER UNIVERSITY

Simon Fraser University (SFU) held a Cryptocurrencies: Bitcoin and Beyond Speaker Series, a free public lecture and dialogue with David Andolfatto, Professor of Economics at Simon Fraser University and Vice President, Research Division, Federal Reserve Bank of St Louis. The event was held on July 7th, 2014.

SFU was also the first university in Canada to accept Bitcoin donations, the round of \$6,000 in total from Scott Nelson, an SFU alumnus, and have a Bitcoin ATM on campus. During May 2015, three university bookstores allowed students to pay for their books using Bitcoin. These initiatives were instigated by the SFU Bitcoin Club, supported by some members forming a Bitcoin Consulting Startup with sponsorship by the SFU Venture Connection program of the university.



Mark McLaughlin, SFU: ‘It won’t take too much to attract people to BC. No one is staking a claim on the educational side of FinTech, Blockchain and the new revolutionary digital technologies.’

ii. UNIVERSITY OF BRITISH COLUMBIA

“Of the 300 students who have joined the UBC Bitcoin Club, 15 were given internships at FinTech firms in Silicon Valley. Almost 40% of the club are female, and members cross academic disciplines, including marketing, legal, mathematical and computer science,” according to Wilson Cross, President and Founder, UBC Bitcoin Club.

¹⁹ Vancouver gets world’s first Bitcoin ATM. Vancouver Sun: October 28, 2013

Success stories of FinTech (and first Bitcoin and Blockchain) companies in BC

- Since 2011, 24 FinTechs have launched in BC, bringing the total to 29, according to figures from BCTech Association.
- Vancouver's largest FinTech Mogo completed a \$50 million IPO on the TSX during the summer of 2015.
- One Vancouver-based mobile payments company Payfirma struck a deal with CIBC that would offer its services to CIBC business banking clients looking to accept payments.
- Over the past year, customer volume for Grow – formerly Grouplend – was between two and two and a half times greater than what founder Kevin Sandhu expected when the alternative lending service launched in 2014. The company raised \$10.2 million in venture capital last year. PlentyOfFish founder Markus Frind said he plans to double his workforce of about 20 people by the end of 2016.
- Nasdaq honoured the Koho banking platform this year with its FinTech Innovation Award for best financial technology company.

In December 2015, Vancouver-based Trulioo raised \$15 million in venture capital in a funding round led by American Express Ventures – the largest amount raised by a Canadian FinTech in 2015, according to the company. At that time, Trulioo President Jon Jones told *Business In Vancouver* (BIV) magazine that partnering with AmEx “gives a lot of weight in terms of the merits that the banking industry can see, and the value of our capabilities as well.” That same week, accounting giant KPMG named Trulioo as one of the 50 global startups to watch in its FinTech 100 report

The Vancouver/Toronto Comparison

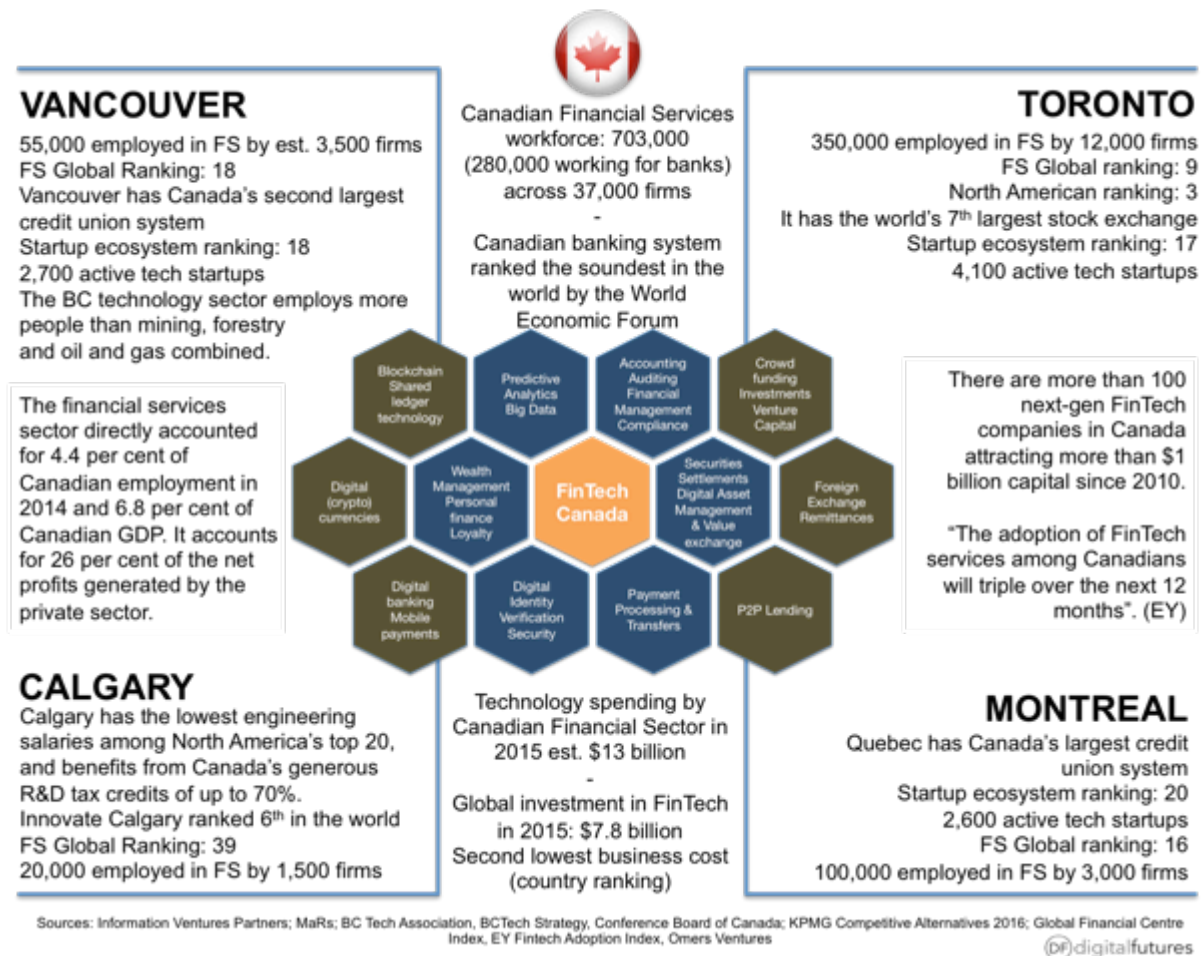
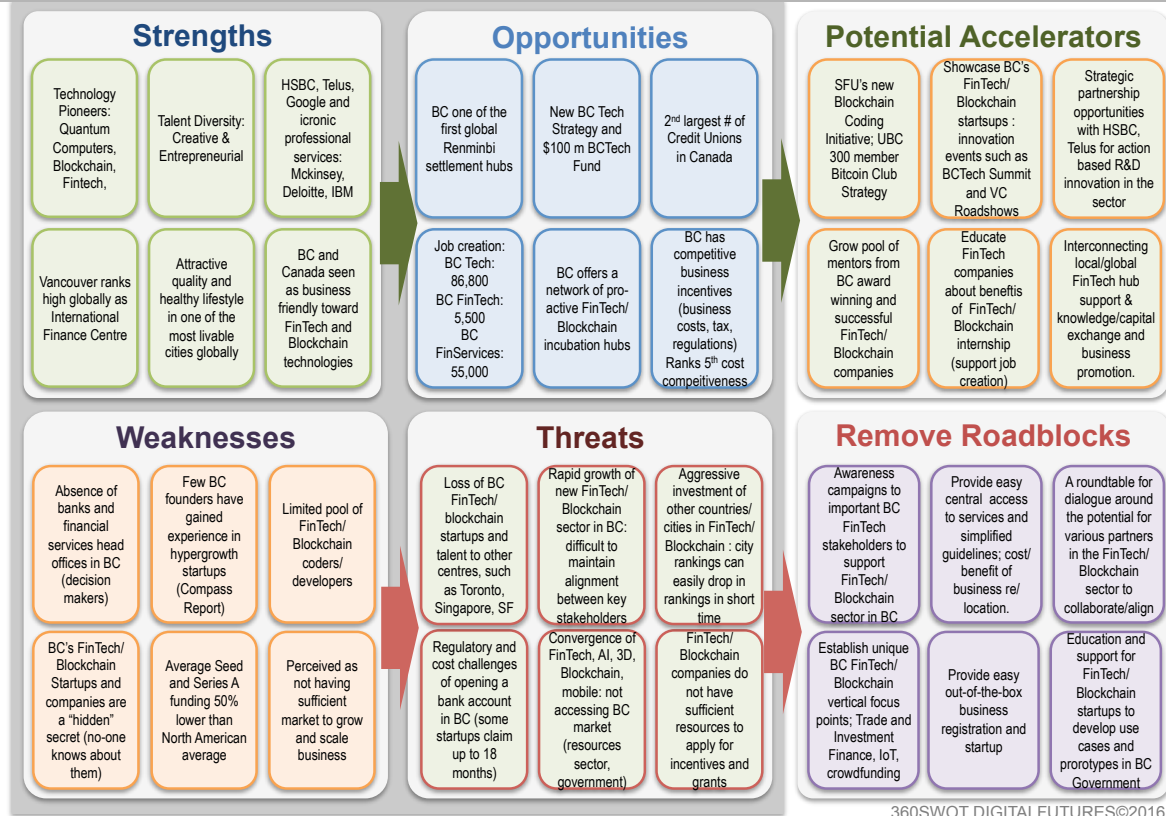


Figure 10: Comparison of the leading FinTech centres in Canada

BC FinTech: Environmental scan: SWOT360



360SWOT DIGITALFUTURES©2016

Figure 11: BC FinTech Hub: Environmental Scan: SWOT360

BC FinTech: Employment and job creation contribution

The BCTech Association's recent report, "Building the BC Fintech Cluster – A Report on the Current State and Needs of the Financial Technology Startup-Community in BC", reports that there are at least 82 companies across 9 sub sectors of FinTech in BC, excluding those involved in internal technology development efforts by traditional financial institutions including banks and credit unions.²⁰

²⁰ Building the BC Fintech Cluster – A Report on the Current State and Needs of the Financial Technology Startup-Community in BC. BC TECH ASSOCIATION

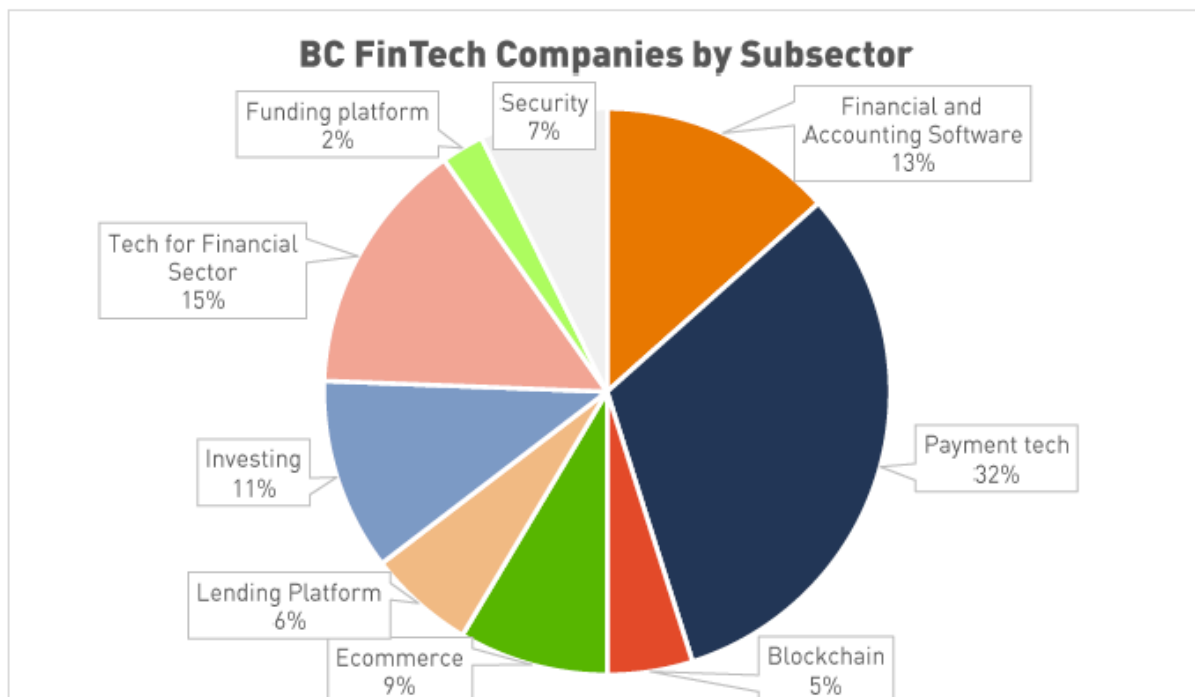


Figure 12: Building BC's FinTech Cluster, BC Tech Association report

A third of BC's FinTech companies are less than 5 years old with more than 40% older than 10 years. Two thirds are early stage with 1-50 employees, one quarter mid-size from 51 to 200 employees and 11% with over 200 employees.

With two thirds of the companies overall being small (less than 50 employees), the BC Tech Association report stresses that it will be important to support these smaller companies to help them grow and scale. A cohesive strategy with a focus on FinTech will help to address this.

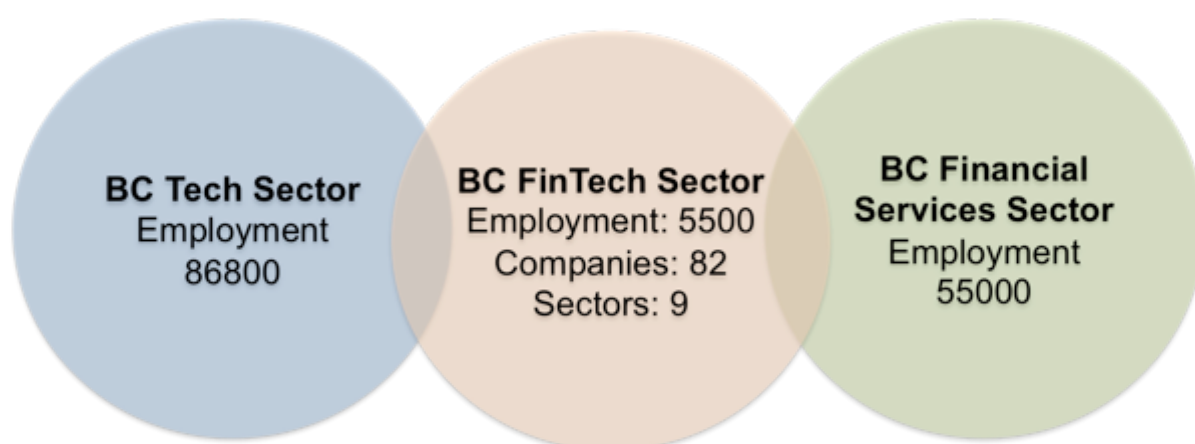


Figure 13: Employment in the BC tech, financial services and FinTech sectors (comparison)

Current BC FinTech ventures²¹:

Cryptocurrency	Netcoins
Banking, ecommerce	Mobify; Nerture; Koho; Cymax; Elastic Path Software; Lemonstand; Thinkific; Checkfront; BuildDirect Technologies
Identification, Verification & Security	Trulioo Information Services; Trustatom; Absolute; CA API Management (Layer7); FortiNet; Shadow Networks; Sophos
Payments, Transfers	Payfirma; paybyphone; Payso; Rentmoola; Payso; NTrust; Tio; Control; Alligato; Beanworks; Inetco; paywith; Hyperwallet Systems; AgilityForex; BeanStream; Bluzelle; Chimp; Control Mobile; Digital River; E-xact Transactions Ltd.; INETCO Systems; iQMetrix; Moneris; Monexa Services Inc.; PayrollHero; Paywith; SamsungPay; T2 Systems (Digital Payment Technologies); TIO Networks; Vivonet; WalleteoPay
Lending	PayHero; Grow; Mogo Finance Technology; Lendful; Snap Financial; Canada Drives; Progressa
Foreign exchange	MatchSpread; AgilityForex
Investments, Crowdfunding	Frontfundr; Voleo; ModernAdvisor; FundRazr; Cassia Research; EOTPRO; InvestX Capital; MatchSpread Financial Technologies Inc.; ModernAdvisor
Accounting, Finance Management	Trippeo; Pi; ACL Services; Aquilon; Basis; Beanworks; Bench; Binary Stream; Kashoo; Rise; Sage Software; Syspro
Analytics	PiAlgo Technologies
Blockchain	Blockchain Technology Ltd. (BTL); QuadrigaCX
Wealth management	InvestX; WealthBar; Cassia; Zafin
Tech for Finance	Agreement Express (Recombo); Central 1 Credit Union; FinCAD; FinStripe; Fiserve (Open Solutions Canada Inc.); Global Relay; Nerture Financial; QHR Technologies; Responsetek; Wall Street Systems; Western Union; Zafin

²¹ BC TECH ASSOCIATION Report, LetsTalkPayments, Omers Ventures

Crowdfunding BC's meteoric rise

According to the National Crowdfunding Association of Canada (NCFA) BC is referenced as having the 'most progressive' regulation for crowdfunding.²²:

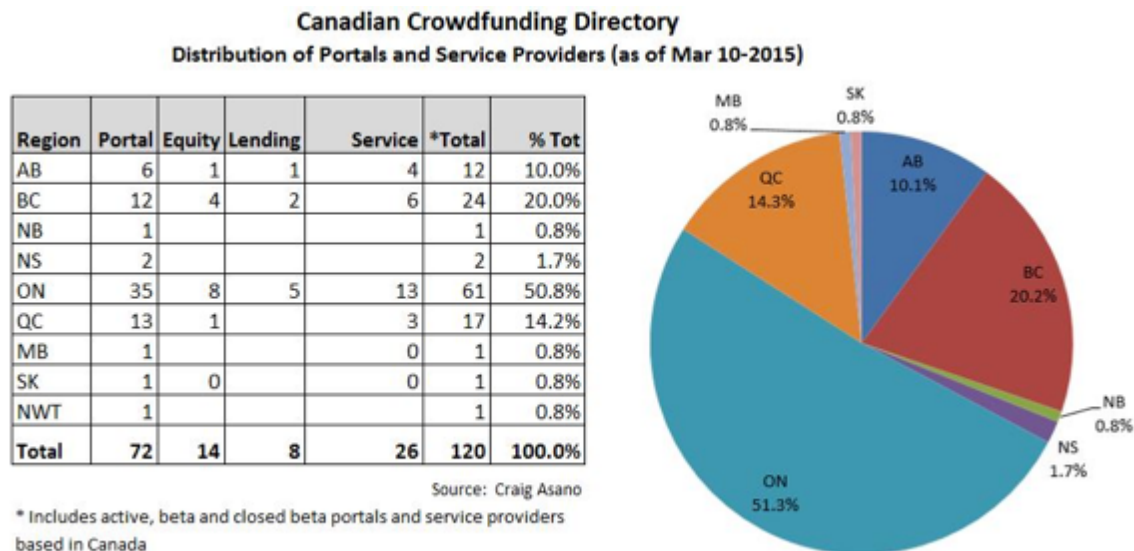


Figure 14: State of Crowdfunding in Canada and BC



PROFILE: The BC TECH ASSOCIATION FinTech Cluster

- BC TECH ASSOCIATION & PayPal have recently launched the Vancouver FinTech Cluster to help fuel local FinTech startups.
- Supports rapid growth for many FinTech peers. Financings in 2015 for the FinTech space include Trulioo (\$15 million), Payfirma (\$13 million), Koho (\$1 million), and Grow (formerly Grouplend, \$10.2 million).
- BC TECH ASSOCIATION foresees the need to attract sophisticated capital, and funding sources from investors that understand the unique competitive landscape of financial tech.
- The FinTech Cluster aims to leverage the [BCTech Fund](#). (Refer to page 36 of this report.)
- We believe BC will receive interest from some of the world's most successful venture capitalists to manage the funds, and co-invest with the government.²³

²² 2016 Canadian Crowdfunding Directory

²³ BC TECH ASSOCIATION collaborates with paypal canada to launch vancouver fintech cluster

5. REGULATORY ENVIRONMENT & PROCESSES IN CANADA

British Columbia is building a reputation across Canada for reducing unnecessary regulatory requirements and streamlining government processes.

Still, navigating Canada's tight financial regulation landscape as a FinTech startup can be daunting. This can be especially true if a business incorporates a cryptocurrency offering, such as Bitcoin, where Canadian banks have resisted calls to approve bank account applications and often refuse, stating compliance risks, or impose higher fees and/or additional criteria to these FinTech applicants.

The main challenges for FinTech startups are to address regulatory requirements around compliance, Money Service Business (MSB) licencing, KYC, AML, fraud prevention, consumer protection, validation identity, and verification, anti-terrorism and sanctions rules in their business development deployment models. The costs of becoming compliance-ready, plus legal and accounting advice and the appointment of compliance officers, can significantly add to startup costs.

If the startup is a MSB, a whole raft of additional rules apply. MSB obligations include registering the business with the Financial Transactions and Reports Analysis Centre of Canada (FINTRAC), keeping records, identifying clients and having a compliance regime.

Although not as onerous as the Bitlicence requirements adopted by the State of New York, all these criteria have to be met from the day the startup commences its money services business. FinTech startups have therefore often elected to remain with their designation as software development ventures, foregoing the money service aspect of their business to avoid the MSB requirements. In turn, they often outsource or licence their offerings in turn to third parties.

Another concern raised is information privacy in the context of the strict interpretation of Bill C51, which was aimed at addressing terrorism concerns. FinTech startups need to seek clarification around user identity and disclosure requirements. This is especially so when conducting business off shore involving foreign nationals, for example, or when offering settlements, remittances and payment processing services.

To deal with these regulatory and compliance concerns, companies are forced to turn to legal and accounting professional service providers to navigate the rules — and obtain the necessary compliance — at great cost, quoted at 10% or more of a FinTech startup's budget.



“Today's AML paradigm is based on heavy customer due diligence and light (intra-company) transaction monitoring. Blockchain tech enables enhanced transactional analyses that were not possible, before. In the pre-Blockchain era, regulated financial institutions could only do intra-company transactional analysis, and had to share information via analog or documentary methods. Networkwide analytics that are possible with Blockchains transcend industries and jurisdictional borders. There is now an opportunity to trade-off reduced KYC

requirements (thus fomenting financial inclusion) for the increased behavioural transparency afforded by the Blockchain.”

— Juan Llanos, EVP Coinalytics and Certified AML Specialist and Risk Expert

Furthermore, there is the issue of taxation interpretation, especially when dealing with cryptocurrency traders, merchants and consumer tax declarations which vary from jurisdiction to jurisdiction. The Canada Revenue Agency (CRA) has altered existing tax codes to help address profits and transactions associated with virtual currencies.²⁴ The CRA has stated that cryptocurrency systems should not be characterised as “money” or “currency” for Canadian purposes. HST/GST has not been addressed to date in this regard. Uncertainty around governance, risk and compliance with anti-money laundering and fraud-prevention rules has prompted financial institutions in Canada to decline cryptocurrency based accounts for businesses.²⁵

²⁴ [Turbotax: How Bitcoins might impact your income taxes](#)

²⁵ [Rebooting Money: The Canadian Tax Treatment of Bitcoin and Other Cryptocurrencies](#)

6. SUPPORT FOR BC FINTECH BUSINESSES

British Columbia does have some key foundations to build on its FinTech ecosystem. The following incentives, benefits and programs can all be utilised to support technology, and specifically FinTech innovation and related businesses in BC:

Small business tax rates²⁶ — lower small business rate applies to active business income.

Scientific Research and Experimental Development Tax Credit (SRED)²⁷ — tax credits for scientific research.

Small Business Venture Capital Tax Credit²⁸ — a special tax credit for equity capital investments in BC small businesses.

Training Tax Credit²⁹ — a tax credit for apprenticeship programs.

The International Business Activity (IBA)³⁰ — this program provides eligible corporations, certain foreign banks authorized to carry on business in Canada, and specialists employed by these entities a refund of the B.C. income tax paid on income related to the corporation's international business carried on in B.C.

Industrial Research Assistance Program (IRAP)³¹ — Canada's premier innovation assistance program for small and medium-sized enterprises (SMEs).

Concierge Advisory Services³² — Concierge is a single access point to funding, expertise, facilities, and global opportunities for small- and medium-sized enterprises (SMEs) seeking to grow through innovation. The only service of its kind in Canada, it offers free, one-on-one assistance from expert advisors who provide customized guidance in selecting the most relevant programs and services to help grow businesses.

There are 24+ incubation, accelerator and innovation labs initiatives in the Greater Vancouver area and across BC providing assistance and funding to startups with more in the pipeline, most accommodating FinTech startups in one form or another.

Aggregated resource lists are provided by:

BCIC

BC TECH ASSOCIATION

Small Business BC

AdvantageBC

²⁶ BC Tax Rates and Business Limits: Published by the Government of BC

²⁷ Scientific Research & Experimental Development Tax Credit: Published by the Government of BC

²⁸ Small Business Venture Capital Tax Credit: Published by the Government of BC

²⁹ Training Tax Credit: Published by the Government of BC

³⁰ International Business Activity Program: Published by the Government of BC

³¹ NRS Industrial Research Assistance Program: Published by the National Research Council Canada

³² Concierge: Your Guide to Innovation: Published by the Government of Canada

Focused business support:



PROFILE: *The BC Tech Fund – A FinTech growth opportunity*

Announced in December 2015, the BC Tech Fund will help BC technology companies that are seeking A-round funding.

The BC Tech Fund will be jumpstarted with a \$100 million investment from the BC Government. A private sector fund manager will provide a market-based, arm's length approach to investment decisions.

FinTech is believed to be among the technology sub-sectors supported by the BC Tech Fund. It is hoped that the Fund will be able to co-invest directly with partners into BC-based FinTech companies and BC Funds that have FinTech as part of their investment strategy.



FOCUS: *BC's International Business Activity (IBA) Program*

Since the original legislation was enacted in 1988, British Columbia's International Business Activity (IBA) program has provided favourable tax treatment for companies earning income in the province from a variety of cross-border transactions. Under the program, a company can receive up to a 100% refund of the BC corporate tax (11% in 2016) paid on qualifying activities. Historically, the IBA program was designed specifically to incent financial institutions, although in 2004 the legislation was amended to expand the program so that any corporation conducting the qualifying activities could benefit from the tax incentive. The IBA program now applies to a wide variety of companies including those involved in banking, securities, wealth and asset management, remittances and foreign exchange, corporate treasury, exporting, patent licensing, and international film / TV distributions.

The IBA program was conceived as an incentive to attract more international financial activity to the province, by encouraging companies already in BC to expand their international scope, by shifting this activity to BC from other tax jurisdictions, as well as by attracting companies to expand their international business to BC from overseas.

In the area of financial technology, there are generally two types of companies involved: those specifically developing new technologies that will be used by other firms --- including many of the start-ups described in this report --- and those which will adapt and employ these new technologies in the course of their business, such as those active in banking, payment processing, securities, trade finance, lending, and such. Keeping in mind both the aims and the incented activities under the IBA program, it is not likely that technology firms involved in developing (and profiting from) these new FinTech tools and applications would qualify. However, many of the companies which employ these new technologies in the course of their international

financial/business activities would continue to qualify under the existing terms of the International Business Activity Act.

In short, while the technology used by companies to transact, record, or audit their businesses may change with time --- be it via paper documents, fax, computer, email, Blockchain, or other means --- the IBA program will continue to apply to the nature of the financial transactions themselves. In the case of Bitcoin and other cryptocurrencies, for example, regulators in Canada have not yet taken any steps to designate them as “currencies”, and as such there would be no case for trading in Bitcoin to fall under the IBA’s qualifying activity of “dealing in foreign exchange”. However, if a bank or foreign exchange company were to employ a Blockchain application in the course of its business of selling or buying USD, Japanese Yen or Euros, the activity would continue to qualify for the IBA benefits.



PROFILE: National Research Council Canada – Industrial Research Assistance Program (NRC-IRAP) International Activities

Global collaboration has become a competitive necessity for small and medium-sized enterprises in Canada. Our international activities play a key role in ensuring that our clients are knowledgeable about and suitably prepared to address global challenges.

NRC-IRAP international activities³³ are focused on providing support in a number of key areas, including:

- direct support to small and medium-sized enterprises with international interests,
- technology partnering, including technology sourcing, transfer, and matching,
- joint research and development projects, and other technology ventures

NRC-IRAP works with Canadian organizations and other government departments such as Global Affairs Canada (GAC) to collaborate on international activities and programs designed to help assist firms in Canada to compete in the global marketplace.

In addition, NRC-IRAP has a number of formal and informal relationships in countries including Spain, France, the United States of America, Ireland, India, China, the Scandinavian countries, the Netherlands and the European Union. NRC-IRAP collaborates with these countries on a reciprocal basis to further support small and medium-sized enterprise growth, technology transfer and technology development for the purpose of generating economic benefits for both Canada and the collaborating countries.

³³ NRC-IRAP International Activities

7. PERSPECTIVES FROM FINTECH LEADERS

Summary themes from interviews with BC FinTech stakeholders

In interviews with leaders in FinTech, it is clear that many see tremendous opportunity to expand BC's and Canada's status as a FinTech hub. Those stakeholders, however, identify obstacles that are hindering the sector's growth.

Below is a summary of key themes emerging from interviews conducted with BC FinTech companies as well as BC FinTech stakeholders.

The BC FinTech sector report research participants perceives the following risks and roadblocks which could hinder the acceleration of the BC FinTech sector growth:

Market and demand roadblocks and challenges

- FinTech companies find it difficult to access local markets effectively and efficiently and with sufficient speed to become sustainable.
- Locally established businesses do not invest in research and development by local startups to support proof of concept projects (e.g. they do not invest in the local startup communities).
- BC Public Sector procurement policies and requirements currently constrain the offering of proof of concept or new services to the BC Public Sector, therefore potentially limiting market growth opportunities for FinTech startups.

Policy challenges and roadblocks in being more “business friendly” towards FinTech

- FinTech and Blockchain start-up enterprises (profit and not-for-profit) currently require unusual resilience, grit and persistence in opening up for trade in BC. Several industry executives explained that opening a business banking account for their companies could take almost 18 months to two years while navigating a highly regulated and risk averse financial ecosystem of traditional banking incumbents.
- There are a variety of support hubs and initiatives, but there is scope for more collaboration and driving towards a more common purpose.

Challenges in accessing investment capital

- BC investors and companies have proved to be somewhat risk averse to FinTech, Blockchain and alternative finance, being more familiar with clean tech, the resource sector, retail, and other traditional successful BC sectors.
- Many FinTech companies are constrained by limited resources and access to financing. They therefore tend to prioritize their resources to build a customer base to grow the business, and opt out of applying for government grants.

Roadblocks in accessing and retaining FinTech talent

- The high cost of living, lower salaries and little growth opportunity compared to competitor hubs make it difficult to attract and retain FinTech talent.
- Currently there are insufficient technical skills (such as Blockchain, AI, Internet of Things) to support growing FinTech sector.
- Due to the limited presence of banks and financial institution head offices, there is also not enough talent in the financial services sector, including compliance, legal, accounting and other professionals who support the financial services sector.
- BC universities do not have adequate experts to design and deliver FinTech and Blockchain programs, and program funding is prioritized for known technologies such as big data, clean tech and bio-chemical.

Potential consequences of not addressing challenges and roadblocks perceived by BC FinTech companies

As a consequence of the combined effect of the challenges, some FinTech companies have left BC to move to other FinTech hubs such as Singapore, San Francisco or Toronto where they perceive their market, talent and clients are located. This trend could continue and ultimately reduce BC's attractiveness to FinTech companies.

"Start-ups in Vancouver have to work twice as hard and bootstrap themselves for twice as long to get investment results that start-ups, for example, in Toronto or London would gain." (A FinTech Startup in Vancouver).

The BC FinTech community has identified the following opportunities for accelerating the growth of the sector in BC

Unique BC FinTech market growth strengths and opportunities

- BC recently launched a \$100M BC Tech Fund to boost B.C.'s tech sector and job creation.
- New technology companies are emerging at increasing rates throughout the province. In 2013, there was an addition of more than 700 new technology companies in B.C., an increase of 8% over the prior year.
- HSBC Bank Canada has its Canadian head office in Vancouver.
- TELUS has its head office in Vancouver (deeply involved in Canada's Digital Identity initiative).
- BC offers cross-industry opportunities for FinTech applications, such as: monetizing payments health care services providers; resource sector carbon taxes; smart contracts for trade and investment; and bill of lading solutions.
- Global tech companies, such as Google, Microsoft, HP, and IBM operate in BC.
- The first Renminbi (RMB) Settlement hub in the Americas.
- As a gateway location in the Pacific Time Zone, British Columbia is a key hub for Canada-China trade and a vital link between US and Asian markets.

- Gateway for trade not linked to USA Banking System (easier to create new innovations).
- Vancouver ranks in the top 20 of International Financial Centres.
- Various firsts and successes in BC, such as the first Bitcoin ATM, first Dogecoin ATM as well as first Ripple forex remittance transaction between USA and Canada.
- Vancouver has a thriving and unique trade and investment market that is poised for growth and innovation.



“There’s huge value in accessing our more ‘West Coast’ approach to thinking outside the box and taking risks,” said Loewen. “Maybe it’s the mountains, or the ocean, or something in the air here in Vancouver, but I think that we tend to bend the rules a bit more and think through problems creatively without fear of constraints.” Kathryn Loewen, founder and CEO of Control, an online payment management company based in Vancouver.³⁴

BC policy strengths and attractiveness for business

- New #BCTECH Strategy aims at providing practical steps to help tech firms navigate the policy and regulatory environment more effectively and efficiently.
- There is a growing number of FinTech Hubs in Vancouver, Victoria and Kelowna to provide business support, as well as access to experienced mentors and advisors as well as collaborative workspaces.
- BC’s tax regime is considered progressive in promoting innovation investment in the Province.
- Strong privacy, security and regulatory compliance – stable financial sector even during the recession.



“Canada has a strong reputation and position on privacy, security and regulatory compliance, which are critical elements when dealing with financial technologies,” Jon Jones from Trulioo Vancouver FinTech Startup.³⁵

Capital investment opportunities in the FinTech sector

- The BC Government is investing in BC to accelerate and enable growth and job creation in the digital economy. The new #BCTECH Strategy (refer to report section on BC support), creates an unusual opportunity for FinTech companies to engage with the BC Government and tap into new and progressive business support services that are being established to accelerate BC tech advantages

³⁴ Vancouver as a Financial Technology Hub? More likely than you may think. Techvibes: September 3, 2015

³⁵ Vancouver as a Financial Technology Hub? More likely than you may think. Techvibes: September 3, 2015

over other jurisdictions: Talent, taxes and time zone. This includes a \$100 million BC Tech Fund, which is expected to start operating in 2017.

- BC has a strong angel investment community venture tax program.

BC FinTech talent assets and opportunities

- The technology sector directly employs more than 86,000 people in BC, and wages for those jobs are 60% higher than B.C.'s industrial average.
- B.C.'s technology sector is growing faster than the overall economy. In 2013, it grew at a rate of 4.7%, higher than the 3.2% growth observed in the provincial economy.³⁶
- BC FinTech companies have an opportunity to utilize BC work placement co-ops to gain access to a talent pool and nurture, grow and retain local FinTech talent.
- Simon Fraser University is in the process of establishing a new initiative to invest in new FinTech coding skills.
- The University of British Columbia has more than 300 Bitcoin Club Members across different academic disciplines, and to date placed 15 students at Blockchain/ FinTech internship positions in Silicon Valley.
- BC has a digitally diverse talent pool enabling novelty and quality products and services.
- ASFU was the first Canadian university that accepted Bitcoin for books, and is now establishing a Coding Academy to develop the FinTech and Blockchain talent pool in BC.
- FinTech hubs are growing in BC beyond Vancouver. Victoria and Kelowna offer attractive incentives which address cost of living issues while also providing an quality life style living for startups who value nature and healthy living while still being in close proximity to the USA and other financial services hub destinations such as Asia Pacific and South America.
- Global iconic brands as well as niche local professional services firms in fields such as management consulting, accounting, taxation, law, international trade and finance in BC provides access to a pool of diverse and creative talent.



“It would be great for the UBC Bitcoin Club to have a partnership with upcoming digital finance firms, e.g. partnership so that these firms can offer benefit of hands-on FinTech education for the club members. For example, such a partnership can enable students to work on innovation research or be a testing ground for FinTech companies in BC.” Wilson Cross – President and Founder, UBC Bitcoin Club

Potential impacts of the strengths and opportunities to accelerate the growth of the BC FinTech sector

BC offers a credible value proposition to cultivate the growth of the budding FinTech sector in BC. There is an opportunity to celebrate, nurture and promote BC as a safe

³⁶ [Profile of the British Columbia High Technology Sector 2014](#)

haven and friendly business partner for companies who want to tap into BC's resourceful entrepreneurial culture while having access to a quality and healthy life style.



“There is almost no excuse for Vancouver not to play a role in FinTech.”
Miklos Dietz, Mckinsey Vancouver

What are FinTech, Blockchain and distributed ledger companies seeking in BC?

- Access to affordable ‘white space’ or previously untapped markets to achieve first mover advantage to be able to create novel and globally exportable businesses.
- Credible user cases and proof of concepts to build first foundation platforms for incubation and attracting investment and new clients.
- Visibility to potential clients and investors (“unsung” FinTech success stories in BC)
- A concierge type service to help navigate regulatory environment, including support with opening bank accounts, establishing taxation reporting and submission to optimize tax incentives and grants, helping with writing grant applications or application with FinTech hubs.

8. ACCELERATING GROWTH OF THE BC FINTECH SECTOR

Is BC FinTech Ready?

Three Canadian cities — Vancouver, Calgary and Toronto — are established in the top tier of world financial centres. They are also leaders in Canada's FinTech ecosystem because they have the foundations to build, innovate and compete in the sector.

The factors to make a financial centre competitive were grouped into broad areas of competitiveness. Respondents were asked to indicate which factors for competitiveness they consider as the most important in the moment. The number of times that each area is mentioned is summarized in the following table:

Area of competitiveness	Number of mentions	Examples of main issues
Business Environment	231	<ul style="list-style-type: none">• Rate of regulatory change is increasing but banks want stability• Rule of Law
Taxation	199	<ul style="list-style-type: none">• Becoming more important• Transparency of rules and benefits
Human Capital		<ul style="list-style-type: none">• Lack of skilled people is a barrier to further investment
Reputation	198	<ul style="list-style-type: none">• Reputation is vital in order to attract high quality staff
Infrastructure	169	<ul style="list-style-type: none">• Investment in infrastructure is a sign that a city is serious about its ambitions
Financial Sector Development	152	<ul style="list-style-type: none">• Developing centres are more aware of the need for stronger clustering

Table 1: Global Financial Centres Index Report (page 18)

Vancouver is becoming an “Established Transnational” with broad and deep experience from having been a localised ‘Established Player’, according to the Compass Global Tech Startup Ecosystem rankings.

“The top financial centres of the world are very well developed, sophisticated and cosmopolitan cities in their own right,” notes Compass. “Successful people are

attracted to successful cities and it is perhaps no surprise that these centres are ranked so high by financial services professionals”.³⁷

The Compass Global Tech Startup Ecosystem Ranking found that:

- Vancouver ranked 18th in 2015 (9th in 2012) with an ecosystem value of \$5bn compared to Silicon Valley at \$323bn.³⁸
- Average seed funding ranged between \$550-600k and Series A funding \$4.5-5m.
- The top target markets are USA, Canada and China.
- 22% employees are remote; 20% are female and 41% are foreign employees.
- 60% of customers are foreign.
- Measured as for access to funding, Vancouver ranked 19th; 15th for market reach; 14th for talent; and 11th for startup experience.

Key Findings from the Compass Report for Vancouver

- Vancouver is currently home to between 1,600 and 2,700 active tech startups and ranks #18, compared to #9 in 2012.
- Funding is Vancouver’s big bottleneck, with a #19 ranking. 2014 venture capital investments were around \$382 million, an amount of capital far below other leading startup ecosystems.
- However, its access to skilled software engineers is quite good—it ranks #14 in talent due to its lower talent costs, even without considering the impact of Canada’s R&D tax credits. Still, entrepreneurs complain that the city has become expensive and that attracting high-quality talent in a timely fashion is a challenge.”
- Average seed and Series A funding amounts in Vancouver are around 50% lower than the North American average. The percentage of local-only investments is slightly higher.
- Vancouver achieves an excellent #11 ranking in startup experience thanks to the high average number of advisors with equity (1.54, which is 11% above North American average).
- The time to hire a software engineer is 9% longer than in Silicon Valley, but the cost of engineers is less than half (~\$52,000 vs. ~\$120,000).
- While ranking #15 in market reach, Vancouver achieves an impressive #2 in global market reach. Like its Canadian counterparts, Vancouver startups focus on the U.S. market from an early stage, as captured by an average of 60% foreign customers (North American average: 37%) and an average number of 1.8 product languages.
- Very few founders (7%) have gained experience at hypergrowth startups (35% in Silicon Valley).³⁹

³⁷ [The Global Financial Centres Index 18. September 2015](#)

³⁸ [Global Startup Ecosystem Ranking 2015: Compass](#)

³⁹ [Global Startup Ecosystem Ranking 2015: Compass](#)



“With conferences like TED, TractionConf.io, and GrowConf hosted in Vancouver, there is no doubt that the world is anticipating a startup boom in this city. We have the talent, entrepreneurial mind set and the infrastructure to support high growth startups to compete on the global stage. More and more high quality startups will come out of Vancouver which will in turn attract more capital flowing into this city. The ecosystem is poised for big and rapid growth.”

Ray Walia, CEO at Launch Academy

Factors for potential BC activities to support BC FinTech growth

The interview respondents provided ideas to support the growth of the BC Fintech sector. They are summarized below:

i. Consider a stakeholder engagement Roundtable Event to develop a common vision, purpose, focus and goals for a BC FinTech sector growth

Various reports from experts have recently been developed and delivered on BC technology and FinTech. These experts and the local FinTech community are keen to engage and participate in a collaborative strategic effort in finding a common purpose roadmap to support positioning BC as a FinTech Hub.

Engaging diverse stakeholders in an inclusive roundtable dialogue, even creating a “prototype” for the BC FinTech value proposition and strategy could create momentum, reduce duplication and silo effects, and focus efforts to grow the FinTech ecology in BC.

ii. Leadership to ensure BC’s business friendliness becomes a competitive advantage for a FinTech ecosystem

BC has a variety of business friendly initiatives and assets to create coherence, alignment and common purpose. There is also an opportunity to identify strengths as well as find strategic solutions to address roadblocks (such as opening of banking facilities) or access to professional services to easily and cheaply deal successfully and efficiently with regulatory requirements.

During interviews, stakeholders highlighted the need for a leader (either an individual or institution) to help accelerate the BC FinTech growth initiatives and exploit BC’s FinTech assets. Such a role would ensure BC’s low business costs and business-friendly policies and climate can be optimized.

For example, such leadership could support the reduction of waiting times and assist startups in navigating BC’s policies and regulations in establishing a new business:

“The biggest differentiator between cities’ approach to regulations is the wait time involved in their bureaucratic processes,” says Nadav Naaman, cofounder and CEO

of Docady. “The best cities for entrepreneurs are the ones that are digitizing this process.”

The Louisiana metropolis of New Orleans has a web app that lets entrepreneurs apply for permits and necessary licenses via their smartphones.⁴⁰

“Some cities such as San Francisco have the *10 Steps to Start your Business*.⁴¹ “

iii. Facilitate strategic education of BC banking and financial services community as well as key stakeholders/investors/government

Strategic education of the banking community could empower Blockchain companies to open bank accounts. It would also benefit FinTech companies in ensuring compliance to banking regulations and complex banking application processes. Such strategic activities could be an important competitive advantage to accelerate BC FinTech growth.

Examples of suggestions included strategic communication and stakeholder engagement plans to help overcome resistance to new technology adoption while advocating and supporting new BC FinTech innovations. For example, events such as the #BCTech Summit 2016 help to create spaces for connecting and showcasing BC FinTech to investors and new clients.

iv. Access to the \$100 million BC Tech Fund: Creating pathways for FinTech companies to know what, when and how to apply

There is an opportunity for FinTech companies to engage with the BC Tech Fund initiative and pitch to the Fund’s manager. Connecting FinTech companies to existing incubators like those from the BC Innovation Council can help them learn what is required to successfully pitch their business to institutional capital providers. BC’s Ministry of International Trade (MIT) can also assist strong Fin Tech companies engage in foreign markets to build strategic partnerships, access capital etc.

v. Access to proof of concept clients — leveraging the deployment of the #BCTECH Strategy

A global trend is growing for government and established businesses actively participating in growing the FinTech ecosystem by offering to sponsor proof-of-concept initiatives. Gaining local support from organizations such as HSBC or Telus, with small and low risk projects such as a BC FinTech project on Blockchain technology, is an example of the type of projects that could be deployed.

⁴⁰ These Cities Are the Most Business Friendly. Entrepreneurial: March 16, 2016

⁴¹ Start and Grow Your Business in TEN STEPS!: City of San Francisco: Office of Small Business

vi. Creating a single-point for access to FinTech related incentives and information for BC (local and international FinTech startups, ventures, entrepreneurs, students, immigrants and investors)

There are various resources and rich data available to support the growth of the current BC FinTech ecosystem, as well as attract future FinTech companies and business into BC.

Finding a single point of access would make it easy to learn more about BC, and help companies establish themselves in BC. Such a website or app of FinTech (and related digital currency, Blockchain, RegTech) startups and events could showcase BC's FinTech ecosystem.

An example of such a portal is found in Hong Kong.⁴²

⁴² FinTech Hong Kong: A Single Point of Access for Hong Kong's FinTech Scene

9. CONCLUSION: BC'S FUTURE AS A FINTECH HUB

BC can draw on a wide range of strengths to sustain and grow its position as a leading hub for FinTech ventures. With a rich technology and innovation ecosystem driving the economy and job creation, opportunities abound to further support investment and nurture FinTech startups.

BC should capitalize on its stable, deep and growing talent and skills pool, advanced education ecosystem, and existing international financial and business strengths to cement its position as a gateway to Asia and North America. A key milestone is Canada's status as one of the early global RMB hubs, and the only one in North America.

There is an opportunity to align FinTech support across government agencies and stakeholder initiatives. Additionally, there should be a focus on strategies that enhance funding and investments, infrastructure and skills development, job creation and business competitiveness, and BC's FinTech events that build branding and creates marketing opportunities.

Every effort should be made to keep BC tax and regulations friendly to draw FinTech opportunities, talent and businesses. Further research and education is needed involving all private and public stakeholders, and with an international outreach and best practice component.

To realize the above opportunities and to sustain Vancouver's status as a leading global FinTech hub, the community must support the development of academic courses in coding, RegTech, FinTech and the Blockchain. Government, industry and community stakeholders should jointly host a roundtable and play a leadership role in showcasing startup success stories at regular events and trade missions.

By aligning FinTech with BC's innovation and international marketing strategy, and harvesting funding opportunities with special attention to the new BC Tech Fund \$100m VC fund, BC can build connections and knowledge exchanges to explore partnerships with leading global FinTech centres and trading partners.

There is merit in investigating and investing in FinTech and related distributed ledger (Blockchain) technologies as a provincial strategy, following initiatives at leading financial centres such as London, UK.⁴³ Consideration should be given to funding and/or support for a government proof-of-concept or use case study to highlight BC's commitment and leadership in FinTech, particularly distributed ledger technologies.

Support for the following potential use cases should be considered by the BC government in applying FinTech and leveraging blockchain technologies:⁴⁴

- Land and asset registries
- Identity management and related regulatory compliance
- Recordkeeping (with timestamping)

⁴³ UK Digital Ledger Technology Report: beyond block chain

⁴⁴ DigitalFutures Blockchain Lab: Building Blocks for the Digital Economy

- Payment processing and verification
- Health records and patient documentation management
- Pension fund management and distribution

British Columbia is now ranked as one of the leading FinTech hubs in North America and internationally. This study indicates there is still much room for growth and a concerted effort by government, and closer collaboration with stakeholders and startups, will build on the current ecosystem to expand BC's FinTech sector as a global hub of excellence, employing thousands of British Columbians.

10. GLOSSARY & DEFINITIONS

FINTECH

FinTech” is a term commonly used within the banking, finance, and technologies industries to describe the literal business of the companies that develop software, run networks, and integrate systems in banking, payments, trading, and beyond. (‘FinTech Rising’ report)⁴⁵.

It’s a large and lucrative sector—and in a literal sense, the earliest business to become automated through computing technologies.

London-based banking expert Chris Skinner describes two FinTech poles in a blog post “What is FinTech?”⁴⁶

- **Traditional FinTech** as “facilitators” with larger incumbent technology firms supporting the financial services sector; and
- **Emergent/digital FinTech** as “disruptors” with small innovative firms disintermediating incumbent financial services with new technology.

“FinTech” refers to the industry overall and, specifically, to traditional financial technology, while “Digital FinTech” refers to Emergent FinTech, either small innovative startups or large non-financial software firms like Apple.

The term is essentially a way of describing and designating the current stage of evolution of bureaucratic control, business management, and commerce processes: from centralized manual and paper-intensive processes; to centralized MIS and electronic processes; to decentralized digital and distributed network based processes.

BITCOIN

Bitcoin is a consensus-based network that enables a new payment system and completely digital money. It is the first decentralized peer-to-peer payment network that is powered by its users via Blockchain technology with no central, sovereign authority or middlemen. Bitcoin is the leading functioning example of a cryptocurrency. It is not currently officially recognised as a currency in Canada.

BLOCKCHAIN (DISTRIBUTED OR SHARED LEDGER TECHNOLOGIES)

A **Blockchain** is a type of database that takes a number of records and puts them in a block (rather like collating them on to a single sheet of paper). Each block is then ‘chained’ to the next block, using a cryptographic signature. This allows Blockchains to be used like a secure, immutable ledger, which can be shared and corroborated by anyone with the appropriate permissions.

⁴⁵ [FinTech Rising](#), Canright

⁴⁶ [What is FinTech?](#)

⁴ [PWC Strategy Report: Developing a FinTech ecosystem in the GCC: Let’s get ready for take-off.](#)

The following diagram illustrates a typical Blockchain application criteria (Figure 2):

What is Blockchain?

A database or a ledger that maintains a continuously growing list of data records or transactions.



So, it's a spreadsheet, like Excel?

In a way yes, but it has special qualities that make it better than traditional databases.



Figure 15: What is Blockchain?

There are many ways to corroborate the accuracy of a ledger, but they are broadly known as consensus (the term 'mining' is used for a variant of this process in the cryptocurrency Bitcoin). If participants in that process are preselected, the ledger is permissioned. If the process is open to everyone, the ledger is unpermissioned or permissionless. (Figure 3):

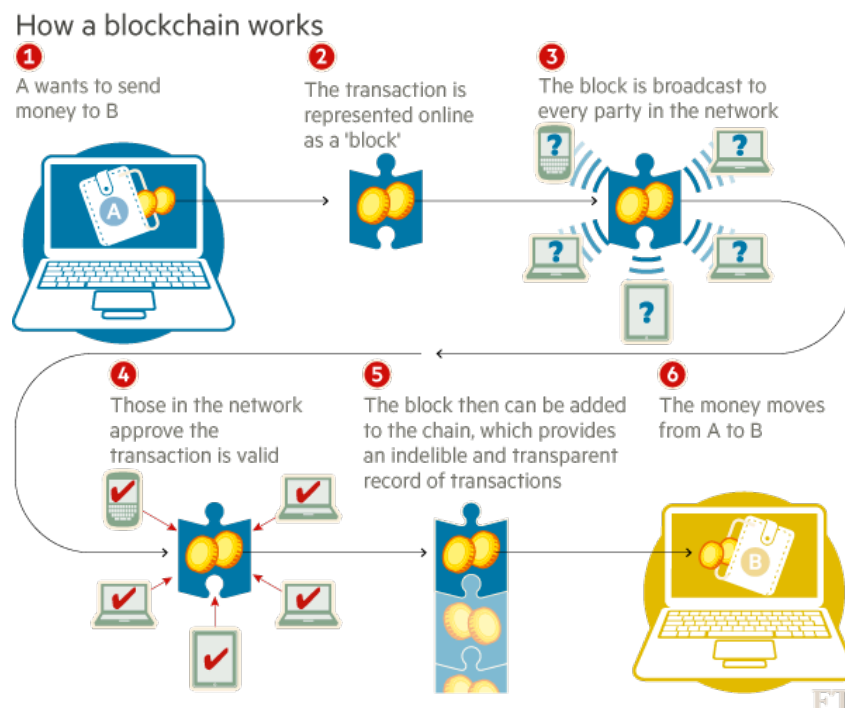


Figure 16: Technology: Banks seek the key to Blockchain (Financial Times)

The real novelty of Blockchain technology is that it is more than just a database — it can also set rules about a transaction (business logic) that are tied to the transaction itself. This contrasts with conventional databases, in which rules are often set at the entire database level, or in the application, but not in the transaction.

CROWDFUNDING

Crowdfunding is the electronic use of small amounts of capital from a large number of individuals to finance a new business venture. Crowdfunding makes use of the easy accessibility of vast networks of friends, family and colleagues through social media websites like Facebook, Twitter and LinkedIn to get the word out about a new business and attract investors. Crowdfunding has the potential to increase entrepreneurship by expanding the pool of investors from whom funds can be raised beyond the traditional circle of owners, relatives and venture capitalists.

CRYPTOCURRENCY

Cryptocurrency is a type of digital currency that uses encryption for security and anti-counterfeiting measures. Public and private encryption keys are often used to transfer cryptocurrency between individuals. Cryptocurrency is also known by the terms “digital currency” and “alternative currency”.

DIGITAL CURRENCY

Digital currency or digital money is an Internet-based medium of exchange distinct from physical (such as banknotes and coins) that exhibits properties similar to physical currencies, but allows for instantaneous transactions and borderless transfer-of-ownership. Both virtual currencies and cryptocurrencies are types of digital currencies, but the converse is incorrect. Like traditional money, these currencies may be used to buy physical goods and services but could also be restricted to certain communities such as for use inside an on-line game or social network. Digital currencies such as Bitcoin and other are known as "decentralized digital currencies," meaning that there is no central point of control over the money supply.

INTERNET OF THINGS

The Internet of Things (IoT) is the network of physical objects—devices, vehicles, buildings and other items—embedded with electronics, software, sensors, and network connectivity that enables these objects to collect and exchange data. The IoT allows objects to be sensed and controlled remotely across existing network infrastructure, creating opportunities for more direct integration of the physical world into computer-based systems, and resulting in improved efficiency, accuracy and economic benefit. When IoT is augmented with sensors and actuators, the technology becomes an instance of the more general class of cyber-physical

systems, which also encompasses technologies such as smart grids, smart homes, intelligent transportation and smart cities. Each thing is uniquely identifiable through its embedded computing system but is able to interoperate within the existing Internet infrastructure. Experts estimate that the IoT will consist of almost 50 billion objects globally by 2020.

OMNICHANNEL

Customers are more demanding and more informed, expecting convenience and simplicity when it comes to financial services, particularly online and via mobile devices:

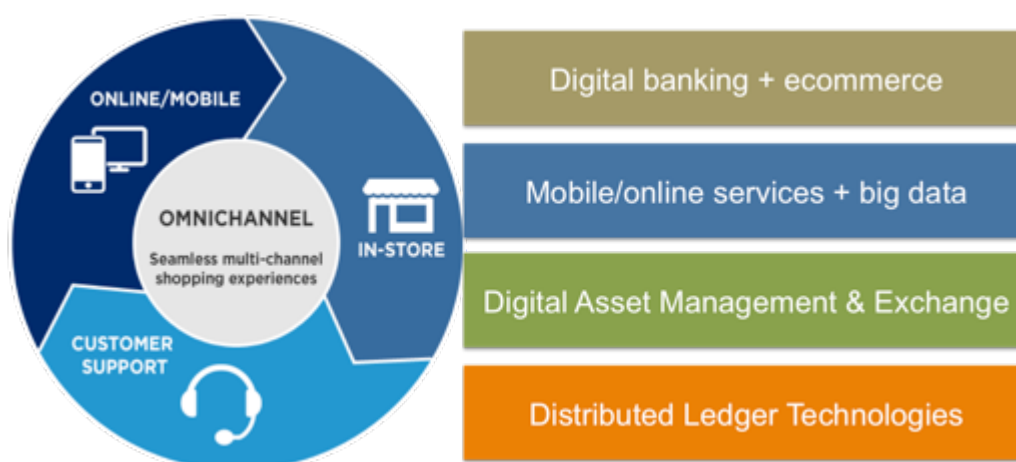


Figure 17: Emerging FinTech omnichannels: Source: DigitalFutures

P2P LENDING

Peer-to-peer lending, sometimes abbreviated P2P lending, is the practice of lending money to individuals or businesses through online services that match lenders directly with borrowers. Since the peer-to-peer lending companies offering these services operate entirely online, they can run with lower overhead and provide the service more cheaply than traditional financial institutions. As a result, lenders often earn higher returns compared to savings and investment products offered by banks, while borrowers can borrow money at lower interest rates, even after the P2P lending company has taken a fee for providing the match-making platform and credit checking the borrower.

11. FINTECH GLOBAL HUB PROFILES

FinTech Global Hub Profiles

The strategies and initiatives of some of Canada's competitors are as follows:



PROFILE: UK - in the lead

The UK FinTech Innovate hub in London is the leading example of a highly geared, well-resourced and accelerated development at a central location (Level 39) supported by government, regulators, the City of London, technology startups, investors, and industry players.








The following recommendations were recently made by Ernst & Young (E&Y)⁴⁷ to further build out the UK FinTech ecosystem:

- Create a FinTech “delivery body” to drive high impact policy initiatives to implementation as quickly as possible
- Build on the Financial Conduct Authority’s (FCA) position as the most progressive regulatory body globally
- Deliver practical business support to FinTechs
- Build FinTech “bridges” to support UK FinTechs’ expansion internationally
- Strengthen the UK’s talent pipeline, particularly for tech talent
- Establish regional Centres of Excellence in the UK
- Initiate investor-focused programmes to improve access to growth capital
- Broaden tax initiatives to drive greater investment in UK FinTech
- Promote government, consumer and FI adoption of FinTech services
- Talent represents the current availability of technical, financial services and entrepreneurial talent as well as the talent pipeline, both domestic and foreign. Capital represents the access to seed and scaling funding. Policy relates to the kinds of regulations bearing on FinTech players and government support programmes as well as tax incentives. Demand is related to the adoption of FinTech offerings by a range of players, including consumers, corporates and enterprise.”

The exhaustive E&Y report highlights the following four core ecosystem attributes of a well-functioning FinTech ecosystem needed to be successful:

1. Talent: the availability of technical, financial services and entrepreneurial talent
2. Capital: the availability of financial resources for start-ups and scale-ups
3. Policy: government policy across regulation, tax and sector growth initiatives
4. Demand: end-client demand across consumers, corporates and financial institutions (FIs) (Figure 6):

⁴⁷ Ernest & Young: An evaluation of the international FinTech sector 2015

2015 rank by ecosystem Attribute						
Region		Talent • Talent availability • Talent pipeline	Capital • Seed • Growth • Listed	Policy • Regulatory regimes • Government programmes • Taxation policy	Demand • Consumers • Corporates • Fis	Total points
UK		2	3	1	3	9
California (CA)		1	1	6	2	10
New York (NY)		3	2	7	1	13
Singapore (SG)		4	7	2	6	19
Germany (DE)		6	4	5	5	20
Australia (AU)		5	5	3	7	20
Hong Kong (HK)		7	6	4	4	21

Source: EY analysis

Note: Please see section 3 for a detailed breakdown of each Attribute by region

Relative rank: 1 = highest, 7 = lowest

Figure 18: E&Y Fintech sector 2015 study - country comparison



PROFILE: Isle of Man – niche player

A great example of a niche FinTech centre is the Isle of Man, which has leveraged its reputation as a gaming-friendly jurisdiction to launch a £50 million fund “specifically designed for startups on the island, and is opening an ICT university to encourage the next generation of IT whiz kids”. Types of FinTech activity appearing on the island include:

- Blockchain applications
- Cash and investment management platforms
- Currency transfers
- Digital currencies
- Financial and share trading
- Investment securitization
- Money transfers
- Processing purchase and sales data
- Smartphone financial applications

It highlights its high-bandwidth connectivity infrastructure and tax incentives to draw both talent and FinTech business to the Isle of Man:

- Zero rate of corporate tax.
- No capital gains tax.
- Income tax: a 20% higher rate (capped at £125,000 per annum) and a 10% lower rate.
- Key worker concessions exempting owners of businesses that create jobs from elements of income tax for three years.

- A tax-free allowance for relocation packages of up to £20,000, to incentivize positive immigration.
- No inheritance tax.
- The Isle of Man is part of the European Union's VAT (Value Added Tax) system which is vital for most trading companies and, particularly in relation to source based transactions, location in a VAT jurisdiction.



PROFILE: China FinTech rising

From a standing start, the Chinese FinTech sector, which is largely concentrated in Beijing, has outgrown almost all other regions globally. Beijing's VC market has increased from \$1.5b of VC investment in 2012 to \$13bn in 2015, and is now second only to San Francisco.

Currently, seven of the world's 31 FinTech "unicorns" (a start-up company valued at over \$1 billion; Canadian tech unicorns are known as narwhals) are based in China. The China Banking Regulatory Commission (CBRC) appears to have taken an arm's length approach to FinTechs, and has allowed them to achieve tremendous scale. For example, Alibaba now processes more than 80m transactions per day, and operates a CAD \$100bn online money market fund. The sheer scale of China's FinTech market threatens to dominate established centres and close neighbours.



Global FinTech Innovators: Ian Pollari, Partner and Global Head for FinTech at KPMG⁴⁸: "Regulation will certainly be a key challenge, but it is also one of the greatest opportunities in the sector. The crucial step for regulators will be to design regulations that work for startups and allow improvements based on iterations from myriad data, including customer feedback, without putting customers at risk."

Global FinTech Centres – Key Country Facts



UNITED KINGDOM

London Global Financial Services Centre⁴⁹ ranking: 1

Regulator: Financial Conduct Authority (FCA)

Market size: \$10bn

Investment: \$786m

FinTech staff: 61,000

⁴⁸ [Leading Global FinTech Innovators 2015](#)

⁴⁹ [Global Financial Centres Index](#)

Initiatives:

Project Innovate (2014): developed by the FCA to support authorization for innovative businesses.

It is proposed to include a “regulatory ‘Sandbox’ which aims to create a ‘safe space’ in which businesses can test innovative products, services, business models and delivery mechanisms in a live environment without incurring all the normal regulatory consequences of engaging in the activity at scale.”⁵⁰

Tax incentives:

EIS (1994): tax relief for investors in smaller high-risk trading companies.

SEIS (2012): tax relief for investors in high-risk start-up projects.

VCT Scheme (1995): tax relief for investors in VCTs.

VCTs subscribe to shares in, or lend money to, small unquoted companies.

Entrepreneurs Relief (2008): capital gains tax relief for entrepreneurs when they sell business assets.

R&D tax credits (2002): R&D expenditure tax relief

Innovate Finance ISA (IFISA) (2016): ISA investment eligibility for P2P loans.

Industry Perspectives:

FCA invaluable in complex market. Easy to engage. Well-informed. High-impact programs.

Characteristics: An “All rounder”

- Proximity to global financial hub offering a wealth of talent and expertise
- Supportive and progressive government and regulatory regime
- Effective network of FinTech hubs



USA

Regulators: California: The Department of Business Oversight; New York: Department of Financial Services

Initiatives:

⁵⁰ [Financial Conduct Authority: Project Innovate](#)

Limited regulatory initiatives specifically aimed at engagement with, and support of, FinTechs.

Tax incentives:

California Competes Tax Credit (2014): tax relief for businesses that want to come to, or remain in,

California; criteria based on strategic and economic importance

Qualified Emerging Technology Company incentives

(2005): tax credits for qualifying emergent tech companies, targeting employment, training and investment

START-UP NY (2013): broad tax exclusion program for start-ups that locate to New York City.

Industry Perspectives:

Limited collaboration. Fragmented. Complex.

FinTech startups typically engage through their local ecosystems in New York, Silicon Valley and Austin (a rising FinTech star) respectively.

CALIFORNIA (Silicon Valley, San Francisco)

Market Size c.\$7bn

Investment c.\$5.4bn

FinTech Staff c.74,000

Characteristics: “Established and efficient”

- Generational expertise from a relatively mature FinTech community
- Well-established interconnections and bridges within the FinTech ecosystem
- Benefits from a concentration of large VC funds with experience in FinTech Investing

NEW YORK, New York

- Market size c.\$8.4bn
- Investment c.\$2.1bn
- FinTech staff c.57,000

Characteristics: “Proximity to expertise and customers”

- Close proximity to established financial market expertise
- Network of first-generation entrepreneurs with an abundance of innovative talent
- Strong presence of FinTech hubs (incubators and accelerators)



CHINA

Regulator: The China Banking Regulatory Commission (CBRC) is an agency of the People's Republic of China (PRC) authorised by the State Council to regulate the banking sector of the PRC except the territories of Hong Kong and Macau.

Initiatives:

- Investment in FinTech in mainland China is second only to California, with over c.£2b of investment as of September 2015 (the bulk of this occurred in the last six months of this period). Increasing FinTech investment parallels the significant rise in the number of Chinese FinTechs that look to follow the success of major players such as Alibaba and Tencent.
- China's FinTech investment mirrors the broader investment landscape where China is increasingly dominant in VC and IPO markets.
- Both Beijing and Shanghai have emerged in the top five hotbeds for VC investment in 2015.
- As leading financial centres, Shanghai and Shenzhen Exchanges listed a total of 1,460 companies in the last decade, second only to the NYSE and NASDAQ combined (1,594).

Industry Perspectives:

Large, highly digital consumer base, open to trying online and innovative solutions.

Rapid growth in the number of FinTech players; many FinTechs established in the last few years.

Dominant tech players, such as Alibaba, launching FinTech products (on a tremendous scale).

Strong FinTech focus on the lending and payments subsectors.



Germany

Regulator: Federal Financial Supervisory Authority (BaFin)

Limited regulatory initiatives specifically aimed at engagement with, and support of, FinTechs.

Industry Perspectives:

Active, but could be more collaborative and transparent.

Complex. Time-consuming.

Characteristics: “Large but complex” ⁵¹

- Significant investment in credit and lending FinTec (c.\$447m); growing focus on B2B FinTech.
 - Complex start-up environment, with efforts under way to better integrate Berlin, Frankfurt and Munich.
-



Australia

Regulator: Australian Prudential Regulation Authority (APRA); Australian Securities and Investments Commission (ASIC)

Initiatives:

National Innovation and Science Agenda (2015): committing c.\$1bn over the next four years to promote business-based research, development, innovation and entrepreneurship. Including: tax incentives, talent initiatives, access to crowdsourced equity funding and incubator support programs.

FinTech Committee (2015): acting on the Financial System Inquiry (2014), the government-backed group will spur collaboration between public and private sectors and ensure the Australian Government responds to innovation in FS.

APRA was recommended by the Australian Financial System Inquiry (FSI) to establish a permanent public-private collaborative committee to facilitate financial system innovation. This has been accepted by APRA and is proposed to be set up mid-2016.

Innovation Hub (2015): developed to help new FinTechs navigate the ASIC’s regulatory system. This includes making senior staff available at open events and industry hubs to respond to questions.

Digital Finance Advisory Committee: includes members from FinTechs, industry and academia to advise ASIC on the hub and its engagement with innovative businesses more broadly.

Tax incentives:

National Innovation and Science Agenda (2016): contains a number of tax incentives to encourage investment – modelled on the UK’s EIS

Market size c.\$1.05bn

Investment c.\$300m

FinTech staff c.10,000

⁵¹ [Ernest & Young : FinTech on the cutting edge](#)

Industry Perspectives:

Nascent FinTech dialogue. Conservative.

Characteristics: “Up and coming”

- Emerging FinTech ecosystem with high level of collaboration and recent government interest
 - Recent c.\$0.75b Federal Government commitment to innovation highlights growing prioritization of agenda
-



Singapore

Regulator: Monetary Authority of Singapore (MAS)

Market size c.\$1bn

Investment c. \$66m

FinTech staff c.7,000

Initiatives:

FinTech and Innovation Group (FTIG) (2015): responsible for creating strategies and regulatory policies regarding technology innovation. A technology innovation lab will work with industry and FinTechs to test innovative new solutions.

Financial Sector Technology and Innovation

(FSTI) Scheme (2015): a commitment of c.\$200m over the next five years to fund innovation labs, institutional-level projects and industry-wide initiatives.

Tax incentives:

Productivity and Innovation Credit (PIC) Scheme

(2010): tax benefits for companies engaging in innovation activities (e.g., R&D and software and design).

Tax exemption for start-ups: tax relief on income for start-ups in their first three years.

Industry Perspectives:

Highly responsive and active.

Nascent efforts and initiatives

Characteristics: “Increasingly progressive regulatory regime”

- Preferred gateway into Asian market, given ease of doing business and English language proficiency
 - Dedicated FinTech team in the Monetary Authority of Singapore (MAS) focused on establishing public and private partnerships for FinTech growth
-



Hong Kong

Regulator: Hong Kong Monetary Authority (HKMA)

Market size c.\$0.9bn

Investment c.\$69m

FinTech staff c. 8,000

Initiatives are more government-led than regulatory-led, and specifically aimed at engagement with and support of FinTechs.

FinTech Steering Group (2015): a government-sponsored steering group, with representatives from government, regulators, industry and research institutions, to identify how Hong Kong can become a FinTech hub.

Injection into **Innovation and Technology Fund** (2015): c.\$900m was injected into the existing fund in February 2015 to support projects which contribute to innovation and upgrading technology in industry.

Innovation and Technology Venture Fund (2016): government to set up a c.\$350m fund to co-invest in local innovation and tech start-ups with private VC funds on a matching basis.

Tax incentives:

Extension of profit tax exemptions to offshore private equity (PE) funds (2015): innovative investment tax relief to offshore PE funds to attract foreign investment.

Industry Perspectives:

Lacks clarity, transparency and innovative engagement. A barrier to sector growth.

Characteristics: "Potential"

- Relatively nascent, emerging market
- Emerging community of FinTechs focused on capital markets

12. REFERENCES AND FURTHER READING

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Cutting through the noise around financial technology By Miklos Dietz, Somesh Khanna, Tunde Olanrewaju, and Kausik Rajgopal, McKinsey February 2016

Competitive Alternatives: KPMG’s guide to international business locations costs, 2016

13. INTERVIEWS & DESK RESEARCH LIST

The following parties were interviewed and researched:

SFU
BCIC
UBC
Bitcoin Alliance of Canada
WaveFront/ DigiBC
Blockchain Tech Limited (Blockchain startup)
Grow (FinTech startup)
FrontFundr (crowdfunding startup)
Paycase (FinTech startup)
Bluzelle (FinTech/ Blockchain startup)
McKinsey
BC TECH ASSOCIATION
Deloitte
VEC
DFI
MaRS
Launch Academy
BCCI
Viatec