



ELECTION 2019

**STRATEGIZING FOR THE FUTURE:
BUILDING A NATIONAL FRAMEWORK FOR
BLOCKCHAIN IN CANADA**

INNOVATION. TRUST. TRANSPARENCY

www.DigitalChamber.org/Canada



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Launched in February 2019, the Chamber of Digital Commerce Canada exclusively represents Canadian blockchain and digital asset innovators by providing dedicated support to advance Canada's emerging and rapidly growing blockchain innovation ecosystem.

Our mission is to promote the acceptance and use of digital assets and blockchain-based technologies. As broad and multi-sectoral applications of blockchain technology continue to emerge, so too do the complex policy, legislative, and regulatory issues. These unique issues are driving critical conversations across our country. They are also demanding attention and action from governments around the globe and will do so for the foreseeable future.

Through education, advocacy, and working closely with policy makers, regulatory agencies, and industry, our goal is to develop an environment that fosters blockchain innovation, infrastructure, job creation, and investment in Canada.

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EXECUTIVE SUMMARY

Advancing policy and pathways for Canada to partake in the global digital economy is imperative to maintain the economic advancement of our country and to ensure that the well-being of Canadians is future-proofed.

Canada's blockchain and digital asset ecosystem is growing and yet continues to face a chill due to lagging policy and regulatory uncertainty, along with a lack of commitment from the Government of Canada to advance and grow this highly innovative technology sector.

We are asking Canadian leaders to:

1. **Deliver Clear Federal Mandates and Coordinated Policymaking Efforts.** The single biggest challenge facing Canada's blockchain technology ecosystem is the lack of clear and coordinated mandates, policies, and regulatory efforts.

Policies and legislation in Canada must be designed and implemented to:

- a. clarify regulatory oversight of the various aspects of the digital asset markets, where required;
 - b. harmonize terminology and definitions for digital assets (e.g. digital currency, digital assets that are securities and digital assets that are not securities); and,
 - c. clarify and harmonize tax and accounting treatment of digital assets across the country.
2. **Deliver Pro-growth Statements, Programs, and Policy to Encourage the Private Sector.** Given the exit of talent and Canadian-founded projects to international jurisdictions, the Canadian Government must promote and develop programs and policies to attract and retain blockchain innovators and their companies. Leaders in government are also encouraged to make frequent public statements acknowledging, encouraging, and celebrating Canadian blockchain innovation.
 3. **Form An All-Party Blockchain Caucus and Cross-Departmental Industry Task Force.** Establishing an all-party blockchain caucus on the Hill and a coordinated cross-departmental industry task force will ensure that political and policy leaders are keeping pace with the rapidly evolving national and global blockchain ecosystem.

The Federal Government has shown early signs of interest to expand Canada's blockchain innovation capacity. We believe that Election 2019 is well-timed to further the dialogue and commitment to Canada's blockchain innovators and ecosystem participants.

As dedicated champions and advocates for Canada’s national blockchain ecosystem we look forward to supporting your work in the weeks and years to come so that we may ensure that blockchain and digital asset technology provides for a prosperous and thriving Canadian innovation ecosystem.

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A BLOCKCHAIN PRIMER

Education and awareness about blockchain technology is needed at the highest levels of government to help steer Canada toward success and prosperity in this highly competitive, global ecosystem. Many people do not understand blockchain technology, and as a result, they under-estimate or dismiss the importance of it.

Put simply, a blockchain is a distributed or shared ledger that holds an immutable record of digital asset transactions. A digital asset can represent currency, like the digital currency bitcoin. It can also represent assets like the title to a car or real estate, stocks, and bonds. Virtually all assets, tangible or intangible, can be recorded, traded, and tracked on a blockchain.ⁱ The capacity for a variety of applications to be built and function on top of this network is a significant advancement to the Internet we know today.ⁱⁱ

In the last decade, blockchain technology has shown the capacity to improve business processes, increase efficiency, and promote transparency in numerous private and public sector applications. These applications are reforming the ways in which companies and governments conduct business. The ability for blockchain technology to improve financial services has led the majority of applications under exploration thus far and is significantly enhancing the way financial institutions conduct business.

Deloitte's Global Blockchain Survey for 2019 reported that non-FinTech organizations including those in media, telecommunications, life sciences, philanthropy, manufacturing, supply chain logistics, government, and health care are expanding their innovation priorities to include blockchain innovation. In fact, 83% of survey respondents see compelling use cases for blockchain in their companies.ⁱⁱⁱ The results of the survey are no surprise given that major industrialized nations are making significant advances in promoting and adopting this technology, making a hard run to be the leaders and obtain the economic value of this industry.

PURPOSE AND IMPORTANCE OF THIS DOCUMENT

Canada is positioned to play a leading role in the global digital economy. The purpose of this document is to inform and support Canada's political representatives and policy makers in their efforts to grow and strengthen Canada's digital asset and blockchain technology ecosystem. This document offers a summary of blockchain policy development in Canada and proactive steps that can be taken now to ensure Canada and Canadians can fully and safely participate in, and benefit from, the global digital economy.

Indeed, the last 10 years have shown that the digital economy is growing and scaling change in all industry sectors at an unprecedented pace. Blockchain technology is part of this evolution. Blockchain technology presents tremendous opportunity for positive impact, prosperity and security to those countries, businesses and people who engage with the technology, learn to adopt it, and leverage it. These benefits are being recognized by entrepreneurs, governments, and leaders around the world. It is an exciting time for Canadian blockchain innovators, but the domestic success of this highly valuable innovation ecosystem is resting in the hands of Canadian policy makers, regulators and politicians.

Competition in the digital economy, and its innovation verticals, is fierce, rapid and rising. Global jurisdictions and companies are seeking out Canada's blockchain technology talent and innovation to rapidly expand their own capacity and output. The pace and demand in this innovation vertical requires Canada's leaders to dedicate education, trade promotion and policy efforts to ensure that our blockchain ecosystem can keep pace with its global counterparts, drive domestic economic returns, and harness the export opportunities in front of us.

This is a critical moment in time for Canada. Blockchain ecosystem stakeholders need a tangible commitment from the Government of Canada to advance this innovation vertical and ensure that stakeholders reap the benefits from its growth and success.

Work to Date in Canada

In 2014, the Senate Committee on Banking, Trade and Commerce began an inaugural study of blockchain and digital currency. The Committee heard from academics, the Bank of Canada, a bitcoin exchange and ATM service provider, lawyers, securities regulators and a number of banks. The presentations resulted in a report published in 2015, which has not been updated since and is due for review.^{iv}

Both the Canada Revenue Agency and Elections Canada have posted guidance on cryptocurrency, however, the fluidity and non-binding nature of these guidance papers provides little comfort to stakeholders, not least wherein it is acknowledged that treatment of cryptocurrency differs at the federal and provincial levels in the same use case, and/or is defined for the purposes of the department issuing the guidance, rather than for Canadians who are attempting to be compliant with the many federal and provincial approaches currently in Canada and globally.^v

The Bank of Canada has also been leading research on central bank applications using blockchain technology.^{vi} In May 2019, in coordination with the Monetary Authority of Singapore, the Bank of Canada conducted the first-ever cross-border and cross-currency payment between two central banks on the blockchain.^{vii}

The Department of Finance (“Finance”) has amended the Proceeds of Crime (Money Laundering) and Terrorist Financing Act targeting financial and non-financial entities that provide access to Canada’s financial system, including dealers in virtual currency and foreign money services businesses.^{viii} These amendments were finalized and published in July 2019.^{ix} In 2019, Finance also released proposed changes to the Excise Tax Act in relation to GST and HST on virtual currency exchanges and introduced a definition for “virtual payment instruments.”^x

Finally, a Private Members Bill C-452, An Act to Amend the Income Tax Act (gift in virtual currency) was proposed in May 2019 to address the challenges with digital asset donations to charities and the lack of access to traditional capital gains exemptions otherwise available for traditional asset donations.^{xi}

Canada has been home to some of the world’s best and brightest blockchain technology innovators to date. Canadian innovators continue to advance their projects, through out-of-country attraction programs, external partners, and in countries with favorable policies and regulation. The lag in government support, failure to recognize this homegrown talent, and failure to adopt agile policies to support Canada’s dynamic blockchain ecosystem has cost the country billions of dollars worth of economic activity.

For example, Ethereum, an open-source platform for decentralized applications, was founded and launched just over five years ago by Canadians. Today, Ethereum is the world’s second largest blockchain^{xii}. In 2015, the first Ethereum-backed public network went live, supporting ether tokens (ETH). The team ultimately relocated the operation to Switzerland and now operates as the Ethereum Swiss Foundation. Ethereum projects are continuing to

receive recognition and support from global policy leaders, including those in the EU Parliament who are driving the global agenda to include blockchain technology in trade agreements.^{xiii} Canada also continues to host an influential hotbed of talent building out and designing the Ethereum blockchain global community. Needless to say, the relocation of Ethereum and many other successful Canadian startups has been a loss for Canada and further drives the urgency for the Chamber and its members to support Government leaders with a comprehensive strategy to mitigate further economic loss.

It is our view that Canada still has an opportunity to take advantage of its many strengths to be a leader in blockchain innovation – the time to bring together thought leaders, resources and support is now. Our homegrown strengths include the scale and sophistication of the established Canadian financial sector, high-skilled human capital, innovation tax credits, and innovation hubs in several Canadian cities can be leveraged. We must also take account of our natural competitive advantages that can support a thriving blockchain ecosystem, such as: low cost hydro, cooler climates, and international trade leadership that will position Canada as a global player in certain aspects of the ecosystem, such as mining.^{xiv} Developing and promoting agile policy solutions will also be required for Canada to have a leading role in the blockchain and digital economy going forward.

What follows is a proposed path forward that we believe should be adopted by all political parties, government thought leaders and policy makers to ensure Canada is in a position to rapidly scale up the blockchain technology ecosystem and benefit from all that this booming innovation sector has to offer.

THE IMPORTANCE OF GOVERNMENT SUPPORT NOW

Canadian-based businesses and consumers are still wary of conducting business or transactions using blockchain technology because they do not understand the full scale of benefits and risks associated with its use.

Globally, blockchain technology innovation is booming and is projected to grow exponentially in the next five years.^{xv} Governments worldwide are engaging in public applications using this technology and they are building active business ecosystems that are attracting global talent and projects.^{xvi} In Canada, industry is moving forward cautiously, developing blockchain technology solutions for digital identity, smart contracts, blockchain mining, supply chain, and digital token applications. Different levels of government are also beginning to engage in public-private partnerships. For example, the municipal government of Innisfil recently launched a partnership with the Toronto-based company Coinberry to enable citizens to use their digital currency to pay for taxes.^{xvii}

However, Canadian blockchain innovators do not believe that the Canadian federal government is supportive and committed to building the blockchain innovation ecosystem domestically. This belief stems from the fact that much of the blockchain-related policy work and dialogue to date in Canada has been heavily focused on risk mitigation and enforcement against bad actors in relation to digital currency rather than on encouraging innovation, modernizing regulations to adapt to blockchain technology, and supporting blockchain startups. The fear-based narrative threatens to starve innovation rather than to encourage the prolific contributions Canada is making to the global digital economy and the advancement of the next iteration of Internet technology (which will be based on blockchain technology).

Not only does this narrow perspective threaten Canada's position as a global leader, but it is also causing more harm than good for Canada's long-term economic prosperity by driving bright Canadian blockchain innovators and their businesses out of the country and into the open and welcoming arms of more competitive jurisdictions. A supportive blockchain ecosystem in Canada can boast its accomplishments and contribute significantly to the economy, while simultaneously ensuring consumer protection and the orderly functioning of business and markets.

Around the world, we continue to see that government policies are having a profound effect on the development of blockchain as an emerging technology vertical. The evolution of digital markets, and the economic benefits that flow from blockchain acceptance, are significantly impacted depending on a nation's

supportive or restrictive policy environment. Many countries and regions are indeed capitalizing on this opportunity – China, European Union, United Kingdom, Singapore, Switzerland, Bermuda, Japan, and Estonia to name a few – and promoting policies that encourage adoption.

To prosper and retain talent and domestic innovation capacity, it is imperative that Canada publicly recognize the benefits of blockchain technology and engage actively with businesses and government partners to enable this important innovation to thrive and evolve in a manner that puts business, consumers, and public interests up front, rather than behind outdated business and regulatory frameworks.^{xviii}

CANADA'S BLOCKCHAIN STRATEGY: ATTRACT, GROW & RETAIN BLOCKCHAIN INNOVATION

The Chamber is asking political parties, political leaders, and policy makers to promote the adoption and use of blockchain technology in Canada. The following paragraphs describe the first steps required to enable further advancement of the blockchain ecosystem nationally and globally.

1. Deliver Clear Federal Mandates and Coordinated Policymaking

The single biggest challenge facing Canada's blockchain technology ecosystem is the lack of clear and coordinated mandates, definitions, policies, and regulatory efforts.

Policies and legislation in Canada must be designed and implemented to:

- a. clarify regulatory oversight of the various aspects of the digital asset markets, where required;
- b. harmonize terminology and definitions for digital assets (e.g. digital currency, digital assets that are securities and digital assets that are not securities); and
- c. clarify and harmonize tax and accounting treatment of digital assets across the country.

Today, Canadian blockchain businesses are forced to operate without policy and regulatory clarity, resulting in unreasonable legal costs, regulatory uncertainty, and high risk just to launch and operate their businesses.

Further, chronic definitional and interpretive challenges have arisen in Canada where terminology and definitional meanings are applied differently to the same item by different government agencies. Terms and meanings are important in the blockchain ecosystem. They may denote legal liabilities Canadians need to be able to identify, understand and navigate to determine whether they own crypto-currency, virtual currency, a virtual payment instrument, or digital currency, as the case may be depending on which Canadian law or policy they are looking at.^{xix} Further, awkward or non-function-based interpretative rules (e.g., not an asset able to be held in a bank account)^{xx} impede advancement and further confuse and conflate issues and meanings for policymakers, legislators, and industry stakeholders alike. Indeed, the time for harmonization of terminology is upon us so we can achieve clarity for Canadians.

It is our view that these challenges can be overcome with national legislation, followed by coordinated policy efforts.^{xxi} Such legislation may include:

- Clear departmental mandates for Industry, Science, and Economic Development Canada (ISED) and the Department of Finance (Finance) to share oversight on all national policy, promotion and growth initiatives for Canada's blockchain ecosystem;
- Clearly defined terminology for blockchain technology and digital assets (e.g., those that are digital currencies, digital commodities, digital assets that are not securities, digital assets that are securities, etc.) and consistent guidance relating to the treatment of these digital assets; and
- Clarity on the accounting and tax implications of owning, selling, donating, and trading digital assets nationally and globally across borders.

We are asking all policymakers and politicians – regardless of party-line – to support the introduction of federal blockchain legislation to provide guideposts that will help to bring much needed clarity to Canada's blockchain ecosystem as it grows and expands globally. We believe that a light-touch regulatory approach is also important to avoid inconsistent approaches across departments. Federal departments do not appear to be coordinated in their policy, regulatory, or legislative approach to issues or questions that are arising from innovators and the public.^{xxii} The lack of harmonization is chilling the Canadian blockchain innovation ecosystem and driving business to other parts of the world.

Other global jurisdictions, including the European Union, have been advancing their positions and attracting innovators and companies seeking to confidently grow their blockchain technology operations.^{xxiii} It is important that a national position is established so that Canadian competitiveness is not lagging in the global digital economy.

Deliver Clear Federal Mandates and Coordinated Policymaking Efforts

Policies and legislation in Canada must be designed and implemented to:

- clarify regulatory oversight of the various aspects of the digital asset markets, where required;
- harmonize terminology and definitions for digital assets (e.g., digital currency, digital assets that are securities and digital assets that are not securities); and
- clarify and harmonize tax and accounting treatment of digital assets across the country.

2. Deliver Pro-growth Statements, Programs, and Policy to Encourage the Private Sector

The Canadian blockchain ecosystem needs supportive, pro-growth political and policy leaders. For Canadian blockchain innovators to thrive, it is important that clearly articulated statements of support for blockchain technology are vocalized and perceived by industry and consumers. Positive statements from government can be included in Ministerial speeches, innovation-focused summit presentations, trade missions, and can even take the form of an official summit convening both public and private stakeholders to consider blockchain technology together.

In addition to statements of support, the Government of Canada can advance programs and policies that support and incentivize blockchain innovators to innovate in Canada and spur the growth of Canada's blockchain ecosystem. Such efforts would complement a comprehensive national position and strategy with respect to promoting blockchain technology innovation, which does not exist today in Canada in the way that it does for artificial intelligence (AI), video games, and big data.^{xxiv}

Direct programs like the Strategic Innovation Fund, superclusters, and other significant government-driven innovation programs can be designed and promoted to attract blockchain innovation and technology development in Canada. Dedicated trade promotion efforts will also help Canada become a global competitor and desirable destination as this sector of innovation expands in the coming years. Internally, the Government of Canada can leverage blockchain technologies to improve government services by making a commitment to procuring blockchain solutions for public applications.^{xxv}

Talent development is another area where Canada can play a leading role. Given that there has been an exit of talent and a number of Canadian founded projects to international jurisdictions, the Chamber recommends that the Government consider programs and policies to attract blockchain innovators and their companies back to Canada. In addition, blockchain skills and talent development initiatives should also be supported by broadening existing skills and talent development programs to explicitly include this innovation sector.

Deliver Pro-growth Statements, Programs, and Policy to Encourage the Private Sector

The Canadian Government must promote and develop programs and policies to attract and retain blockchain innovators and their companies in Canada. Leaders in government are also encouraged to make frequent public statements acknowledging, encouraging, and celebrating Canadian blockchain innovation.

3. Form An All-Party Blockchain Caucus and Cross-Departmental Industry Task Force.

For political leaders and their teams, the Chamber encourages the formation of an All-Party Blockchain Caucus similar to that established in the United States to further pro-growth and pro-innovation policies and objectives.

Establishing an all-party blockchain caucus on the Hill and a coordinated cross-departmental industry task force will ensure that political and policy leaders are keeping pace with the rapidly evolving national and global blockchain ecosystem.

Coordination between government departments impacted by, and interested in, blockchain technology can be improved through the creation of a cross-departmental task force. This task force can serve to assist with policy development and take into consideration the need to develop this technology when creating guidance, regulations, and regulatory actions. The task force should be given a specific mandate to encourage and incentivize blockchain innovation. A number of provincial sandboxes and advisory councils are being established; however, their focus on regulatory oversight and consumer protection has had a negative, rather than pro-growth, effect.^{xxvi}

Form An All-Party Blockchain Caucus and Cross-Departmental Industry Task Force.

Establishing an all-party blockchain caucus on the Hill and a coordinated cross-departmental industry task force will ensure that political and policy leaders are keeping pace with the rapidly evolving national and global blockchain ecosystem.

GUIDING PRINCIPLES FOR GOVERNMENT

When taking action, we encourage government stakeholders to consider the following principles to guide efforts to support blockchain technology. The principles are global guiding principles that can be applied in the borderless digital economy.

ENCOURAGE PRIVATE SECTOR BLOCKCHAIN INNOVATION

The private sector was a leader in developing the Internet in the 1990s and 2000s and should continue to be so today. As Canada strives to lead global innovation, it is important that blockchain entrepreneurship is well-supported and government is harnessing private sector creativity to enhance public benefit. To encourage ongoing innovation, governments must publicly recognize, encourage and celebrate innovators working to keep industry relevant today and in the future.

STUDY AND UNDERSTAND THE UNIQUE ATTRIBUTES OF BLOCKCHAIN TECHNOLOGY AND DIGITAL TOKENS

Blockchain technology projects can be complex. Government stakeholders must take the time to learn how these innovations work, their strengths and weaknesses, and how their attributes can create new mechanisms for enabling the provision of products and services by governments and businesses, as well as enabling better access to consumers. A study should also include experiential learning, experimentation, and collaboration with industry stakeholders to ensure government leaders fully understand the innovation itself and the full range of possible private and public sector applications.

COORDINATE CANADA'S BLOCKCHAIN STRATEGY GOING FORWARD

Given the multi-tiered and multi-stakeholder structure of innovation and financial services policy and regulation, a coordinated approach across departments is necessary to ensure harmonized regulation and policy is achieved to support compliance and growth of the industry. A cross-government, cross-department task force could work to identify applications

of blockchain that could cut costs for taxpayers, it could also provide a gateway for entrepreneurs to better understand the laws surrounding blockchain and virtual currencies, and it could inform global trade and policy discussions. Such a task force could also work on blockchain-based economic development activities and coordinate the Canadian government's policies going forward. Such a task force would be an ideal collaborator for industry to share their advancements and progress.

UNDERTAKE TO DELIVER CLEAR AND RELIABLE POLICY FOR FUTURE FORWARD INNOVATION

Securities regulators in Canada have been the most active on enforcement matters and they have been the primary first stop for innovators with questions on compliance and guidance on how to operate legally in Canada. This has created an unreasonable vulnerability for these companies that would otherwise be avoided if policy and cross departmental responsibilities were clearer and mandated.

Industry must have clearly articulated and reliable statements from regulators regarding the application of law and regulation to blockchain technology. Public statements, whether through the press or formal speeches, and unofficial guidance are not official statements that can be relied upon by industry.

Further, if a government department or regulator intends to enforce its laws on new and innovative companies, it should also be compelled to first notify industry stakeholders of its intent to do so and publish public guidance on the ways in which existing law applies. Enforcement organizations cannot serve as the first instance of government contact without a mandate permitting them not to enforce or threaten enforcement if a good faith effort is being made by the industry participant seeking guidance, such as in a "Regulatory Sandbox" environment.

AGILE POLICYMAKING MUST BE PRIORITIZED AND SHOULD KEEP FUTURE INNOVATIONS IN MIND

Technology changes rapidly. As such, laws and regulations should be drafted as the market needs them, with the intent to endure future iterations, and not focus solely on one technology or application. This is best accomplished through technologically neutral, principles-based laws that enable updating and iterating for future legislation and regulation.

POLICY AND REGULATION SHOULD BE CONSISTENT

In addition to clearly articulated and reliable statements from regulators regarding the application of law and regulation to blockchain-based applications and tokens, industry also requires consistent applications of terminology across all levels of government and policies. Adopting a common nomenclature that can be used across all departments, all legislation, all public guidance and reference material, and all international agreements should be a guiding goal for all governments.

ADOPT A LIGHT TOUCH REGULATORY APPROACH WHILE THE INDUSTRY ESTABLISHES KEY INNOVATIONS, BRINGING ENFORCEMENT ACTIONS AGAINST CLEAR VIOLATIONS OF LAW

Regulation that is too restrictive or does not take into account the potential for future innovations will stifle the growth of this emerging industry and undermine government efforts to remain a leader in, and keep pace with, global technological development. Clear and consistent policies, legislation and regulation are necessary to give confidence to the sector; however, these efforts need not be heavy handed and must not further chill the industry.

SHOW GLOBAL LEADERSHIP

Digital commerce is inherently global. Companies are severely hindered when needing to interpret and comply with numerous diverging requirements. We must develop frameworks that adhere to the above principles consistently across borders and geographies to ensure responsible growth for this industry.

Further, Canada must continue to participate in global efforts to establish best practices for blockchain innovation and policy to improve symbiotically. Canada must leverage trade agreements for these important conversations and make a concerted effort to promote Canadian blockchain innovation globally. Canada's support for developing countries also provides opportunity to show global leadership by exporting Canadian blockchain innovation to ensure the unbanked and undocumented people in the poorest countries finally have access to bank accounts and government support services they have not had access to previously.

BLOCKCHAIN APPLICATIONS FOR GOVERNMENT AND INDUSTRY

The following are key areas in which blockchain technology can impact the activities of government, industry, and consumers.

CYBER SECURITY, CYBER RESILIENCE, AND CRITICAL INFRASTRUCTURE

Blockchain technology can serve a foundational role in protecting Canada's critical infrastructure by dramatically enhancing cyber resilience. Unlike the Internet, which was created without fundamental security mechanisms, blockchain is secure by design with cryptographic public key infrastructure at its core. This advancement is paving the way forward for the next generation of the global Internet. In a blockchain system, simple passwords – which are the biggest weaknesses in current systems – are eliminated. This is just one of many benefits of blockchain technology as there are no single points of failure or central systems to attack.

Further, Canada has a unique and attractive value proposition for companies that want to establish blockchain mining operations.^{xxvii} Blockchain miners use data centers to host the servers that verify the transactions that occur on blockchains. Mining data centers are in high demand and generate significant income as businesses, but also for the local energy provider from whom they buy power. Canada's low cost of energy, ample land and cooler climate are all attractive value propositions for blockchain mining companies. This is an important area for growth for Canada and should be explored more closely by government.

FINANCIAL SERVICES

Blockchain technology can create new efficiencies and cost savings in cross-border payments, thereby increasing access to financial services for the unbanked and underbanked. In trade finance, it can increase speed and reduce costs in the issuance of letters of credit, processing of trade payments, and transferring of assets. Blockchain technology, smart contracts, and virtual currencies can establish new levels of control, and substantial benefits, for the owners of securities through enhanced issuing, tracking, trading, and settlement capabilities. Many Canadian banks and FinTech companies are innovating and implementing their blockchain innovations.

DIGITAL IDENTITY AND PRIVACY

Blockchain technology can provide new methods of securing identity information, thereby increasing participation in the digital economy by all citizens. One of the principal roles of government is the establishment of identity through driver's licenses, birth certificates, social insurance numbers, etc. One of blockchain's most innovative, and potentially impactful, use cases is directly tied to the establishment of identity. The Government of Canada has begun exploring the implementation of blockchain-based identification systems.^{xxviii} Other countries are also implementing various public sector applications using blockchain technology such as voting and passports.^{xxix} These systems can streamline government services and reduce the costs to taxpayers. The Chamber encourages legislators and policymakers to reach out and cooperate with entrepreneurs that are already making progress in this area to further advance decentralized public identity protocols.

HEALTHCARE

Many of the problems surrounding the transfer, storage, and access of healthcare information can be solved using blockchain technology. There are a variety of regulatory and legal requirements on entities within the healthcare system. For an early stage business, or businesses exploring innovative technologies and their potential benefits in healthcare, these laws can be burdensome and prevent further development in the healthcare field.

Policymakers should set up portals that provide companies with the necessary resources to establish businesses or new use cases, such as information on their regulatory obligations. This form of cooperation may benefit the healthcare system, reducing inefficiencies and cost.

INSURANCE

A blockchain can streamline overall functions, recordkeeping, and the claims process through a combination of smart contracts and internet-of-things ("IoT") enabled devices. First, blockchains enable efficient and effective recordkeeping and information sharing among stakeholders within an insurance model.

Moreover, smart contracts can streamline the claims process and user experience. Using automotive insurance as an example, a smart contract can be executed to record the policy, driving record, and report of all drivers that

have purchased the policy. Using IoT enabled devices, establishing vehicle self-awareness, the vehicle can assess its own damage using sensors and can execute initial insurance claims and police reports. This removes the duplicative work that is required by various agents within the insurance entity itself, saving money and time.

SMART CONTRACTS

Smart contracts, essentially self-enforcing contracts, have enormous economic potential due to their frictionless nature. Smart contracts can increase the speed of transactions, executing them almost instantaneously. A seemingly limitless number of micro transactions can take place, on a rapid basis, through smart contracts. For example, a standardized swap transaction may be represented by a smart contract that, among other things, automates the exchange of margin payments among counterparties and reports transaction data to regulators.

This utility can be used to create disintermediated business processes: where payments across entire supply chains are streamlined, and equity holders or employees are compensated automatically upon the occurrence of certain events. The potential economic gain can be furthered with the addition of other types of new technologies, such as IoT-enabled devices. For example, an IoT device, such as a smart-meter on a home, could record and log the usage of electricity. If the home is generating excess energy from a solar panel, the IoT device can automatically execute smart contracts to sell the unused energy to the grid.

SUPPLY CHAIN

In the context of global supply chains, blockchain technology can provide businesses and individuals with an increased ability to track a product's entire path from inception to consumption. The opportunities that blockchain can provide for the supply chain are not limited to one entity or activity. Business processes can achieve cost-reduction and higher levels of efficiency through a streamlined supply chain.

Consumers will be able to better determine the quality, safety, and legality of their purchases. Several applications of blockchain technology in the agriculture and manufacturing sectors are emerging. In Canada, TrustBix, an Alberta based company has become a global leader in food traceability and sustainability leveraging a combination of cloud platform software and

distributed ledger technologies that shares and monetizes data from and to producers to retailers.^{xxx} In 2015, TrustBIX created the Beef InfoXchange system (BIXS), the backbone technology platform for McDonald's first Verified Sustainable Beef pilot program. This very first system in the world was tested in Canada and has successfully demonstrated full traceability from "birth to burger".

The level of traceability made possible for agricultural and food safety application presents a number of benefits to industry and government. Another valuable use case for blockchain technology arises in the case of contaminated food. Where the source of contamination can be identified accurately, less of the food supply would have to be destroyed when a contamination issue arises. A blockchain-based supply chain allows for this level of accurate tracking.

Another supply chain use case is seen in the context of petroleum production.^{xxxi} Major energy companies are leveraging blockchain technology to create efficiencies and stay globally competitive.^{xxxii} TSX Energy listed Petrotek Energy has committed to build the first blockchain based platform developed exclusively for the supply chain needs of the Oil & Gas Sector.^{xxxiii}

Supply chain applications have been sought out by the Canadian government in the context of steel production. In December 2018, the federal government put a call out for the creation of "a novel application of a digital tracing system enabled by blockchain and artificial intelligence for the Canadian and possibly North American steel supply chain for business users and government."^{xxxiv}

INTELLECTUAL PROPERTY

While the blockchain industry has a very strong open source community, there are those companies that have chosen to protect their intellectual property. Blockchain can help secure intellectual property, track supply chain and provenance, identifying counterfeit goods, maintain trade secrets and distribute royalties to creators. It can also create value in companies that choose to employ IP protection strategies. The issue has taken on global significance – for example, data from WIPO shows that 843 blockchain-related patents were filed between 2013 and 2017. Further, in Canada, Access Copyright has launched its blockchain project Prescient to monetize literary rights.^{xxxv}

VOTING

One of the reasons that electoral officials have been slow to migrate voting online is fear that election integrity could be compromised by hackers. Blockchain technology can now be used to combine much-needed ballot security with voting convenience. By integrating cryptography into software, blockchain technology creates a tamper-free record that can easily be checked to ensure votes are accurately recorded. Due to the secure and immutable nature of blockchain, votes may be cast by computer or mobile device instead of having voters show up at a local polling place or cast a mail-in-ballot to be processed manually by election officials. Votes tracked through a blockchain provide for a quicker, tamper-proof way of counting votes, which could lead to greater voter participation, better ballot security, and at lower cost.

NEXT STEPS

The Chamber looks forward to working with Canada's political and policy leaders to develop and implement a robust blockchain innovation strategy for Canada's blockchain ecosystem that follows the Guiding Principles shared in this document. Over the coming months we will continue to establish cross-sector and cross-departmental collaboration to better support blockchain innovation in Canada.

Finally, the federal election presents a unique and important opportunity to address the current policy and ecosystem gaps that blockchain technology innovators need to confidently advance their work in Canada. We remain available to answer any questions or issues that may arise during and after Election 2019.

ⁱ A more technical definition for blockchain is "a specific type of distributed ledger technology that organizes data into blocks that are "chained" together chronologically by a cryptographic hash function and confirmed by a consensus mechanism." See: The Chamber of Digital Commerce's Legislator's Toolkit for Blockchain Technology is a helpful resource: <https://digitalchamber.org/state-legislator-toolkit/>

ⁱⁱ The start of this innovation ecosystem is attributed to an anonymous White Paper called "Bitcoin: A Peer-to-Peer Electronic Cash System" authored pseudonymously by Satoshi Nakamoto. Additional resources to learn more about blockchain include: Investopedia, <https://www.investopedia.com/terms/b/blockchain.asp> and World Economic Forum, "What is Blockchain", <https://www.youtube.com/watch?v=6WG7D47tGb0>.

ⁱⁱⁱ Deloitte's 2019 Global Blockchain Survey: Blockchain gets down to business (2019): https://www2.deloitte.com/content/dam/insights/us/articles/2019-global-blockchain-survey/DI_2019-global-blockchain-survey.pdf at

pg.3. For additional training and resources, the Chamber of Digital Commerce's Legislator's Toolkit for Blockchain Technology is a helpful resource: <https://digitalchamber.org/state-legislator-toolkit/>.

^{iv} Senate of Canada, "Digital Currency: You Can't Flip This Coin! Report of the Standing Senate Committee on Banking, Trade and Commerce" (June 2015): <https://sencanada.ca/content/sen/Committee/412/banc/rep/rep12jun15-e.pdf>; see also: Social Media Infographic: <https://sencanada.ca/en/sencaplus/social-media/icymi-digital-currency/>

^v See: Canada Revenue Agency, Guide for cryptocurrency users and tax professionals (first published 2015):

<https://www.canada.ca/en/revenue-agency/programs/about-canada-revenue-agency-cra/compliance/digital-currency/cryptocurrency-guide.html> and Elections Canada: Interpretation Note: 2018-10 (March 2019):

<https://www.elections.ca/content.aspx?section=res&dir=gui/app/2018-10&document=index&lang=e> "Cryptocurrencies have traits of

both money and property. A cryptocurrency is "[a] digital currency in which encryption techniques are used to regulate the generation of units of currency and verify the transfer of funds, operating independently of a central bank. Like money, they can be used to make purchases from businesses that choose to accept them. But unlike money, they cannot be placed directly into a bank account. Instead cryptocurrencies can be sold for traditional currencies that can be placed into a bank account. In this sense, they are more like stocks or bonds, which are a form of "property" and fall under the definition of a non-monetary contribution. Of the two Canadian provincial election agencies to have taken a position on the issue to date, one considers a contribution in cryptocurrency to be monetary while the other considers it to be non-monetary. In the United States, the Federal Election Commission treats cryptocurrencies as "in-kind" (that is, non-monetary) contributions. In view of the properties of cryptocurrencies and their most common regulatory treatment, Elections Canada considers a contribution in cryptocurrency to be non-monetary *for the purposes of the CEA*." [our bolding]

^{vi} See, e.g., James Chapman, Carolyn A. Wilkins, Crypto 'Money': Perspective of a Couple of Canadian Central Bankers, Staff Discussion Paper 2019-1, February 2019, <https://www.bankofcanada.ca/wp-content/uploads/2019/02/sdp2019-1.pdf>.

^{vii} "Central Banks of Canada and Singapore conduct successful experiment for cross-border payments using Distributed Ledger Technology" (May 2, 2019): <https://www.mas.gov.sg/news/media-releases/2019/central-banks-of-canada-and-singapore-conduct-successful-experiment-for-cross-border-payments>

^{viii} Regulations Amending Certain Regulations Made Under the Proceeds of Crime (Money Laundering) and Terrorist Financing Act, 2018 (June 9, 2018), <http://www.gazette.gc.ca/rp-pr/p1/2018/2018-06-09/html/reg1-eng.html>

^{ix} <http://www.gazette.gc.ca/rp-pr/p2/2019/2019-07-10/pdf/g2-15314.pdf>.

^x Goods and Services Tax/Harmonized Sales Tax Proposals to amend the *Excise Tax Act* to treat virtual currency as a financial instrument for GST/HST purposes (May 17, 2019): <https://www.fin.gc.ca/drlreg-apl/2019/gst-hst-tps-tvh-l-bil.pdf>.

^{xi} Bill C452, An Act to amend the Income Tax Act (gift in virtual currency) (viewed July 15, 2019):

<https://www.parl.ca/DocumentViewer/en/42-1/bill/C-452/first-reading>.

^{xii} Ethereum's current market cap (at the time drafting) is ~\$24 billion USD according to Coin Market Cap (August 2019), <https://coinmarketcap.com/currencies/ethereum/>. The organization that started in Toronto is also now headquartered in Switzerland.

^{xiii} "Coindesk, "EU Parliament Calls for Action on Blockchain Adoption in Trade [Agreements]" (December 14, 2018):

<https://www.coindesk.com/eu-parliament-calls-for-action-on-blockchain-adoption-in-trade>.

^{xiv} See definition from Techopedia: "Mining, in the context of blockchain technology, is the process of adding transactions to the large distributed public ledger of existing transactions, known as the blockchain. The term is best known for its association with bitcoin, though other technologies using the blockchain employ mining. Bitcoin mining rewards people who run mining operations with more bitcoins": <https://www.techopedia.com/definition/32530/mining-blockchain>

^{xv} Deloitte, "Deloitte's 2019 Global Blockchain Survey: Blockchain Gets Down to Business" (May 2019):

https://www2.deloitte.com/content/dam/insights/us/articles/2019-global-blockchain-survey/DI_2019-global-blockchain-survey.pdf.

^{xvi} The Government of Dubai has been a very proactive and supportive of fostering a global blockchain hub which includes a commitment to public sector innovation: <https://www.smartdubai.ae/initiatives/blockchain>.

^{xvii} Press Release (March 28, 2019): <https://innisfil.ca/wp-content/uploads/2019/06/Town-of-Innisfil-First-Municipality-in-Canada-to-Accept-Cryptocurrency-in-Partnership-With-Coinberry.pdf>.

^{xviii} Digital tokens, which include digital currency, have many uses. They may represent numerous things, from currency, commodities, securities, title to property, identity, provenance, rewards and many other novel applications. Digital tokens also create a need for stakeholders to find adaptable interpretations of existing laws that, in certain cases simply fail to apply or guide compliance for the new features of this type of innovation. The result is a lack of a predictable regulatory and legal environment in Canada. Without clear policy or legal frameworks, space has been created for other industries and wary regulators to be misunderstand any risks associated with this innovative vertical. Further, tendencies toward fear-based policy narratives move away from the "light touch approach" recommended by the Senate of Canada, and further hinder innovators and businesses in Canada to move forward and compete globally in the digital economy from home.

^{xix} For example, a simple comparison of the following will show terminology and definitional variations that appear to relate to the same thing (being cryptocurrency): Canada Revenue Agency, Guide for cryptocurrency users and tax professionals (first published 2015):

<https://www.canada.ca/en/revenue-agency/programs/about-canada-revenue-agency-cra/compliance/digital-currency/cryptocurrency-guide.html>; Elections Canada: Interpretation Note: 2018-10 (March 2019):

<https://www.elections.ca/content.aspx?section=res&dir=gui/app/2018-10&document=index&lang=e>; Senate of Canada, "Digital Currency: You Can't Flip This Coin! Report of the Standing Senate Committee on Banking, Trade and Commerce" (June 2015):

<https://sencanada.ca/content/sen/Committee/412/banc/rep/rep12jun15-e.pdf>; Department of Finance, Amendment to the definition *financial instrument* in subsection 123(1) of the *Excise Tax Act*: <https://www.fin.gc.ca/drlreg-apl/2019/gst-hst-tps-tvh-l-eng.asp>; and the new Proceeds of Crime (Money Laundering) and Terrorist Financing Suspicious Transaction Reporting Regulations (2019): <http://www.gazette.gc.ca/rp-pr/p2/2019/2019-07-10/html/sor-dors240-eng.html>

^{xx} See rationale provided in Elections Canada Interpretation Note 2018-10 (March 2019): <https://www.elections.ca/content.aspx?section=res&dir=gui/app/2018-10&document=index&lang=e>

^{xxi} Globally, countries are working to advance legislation of this nature. In the US, the Blockchain Promotion Bill provides a benchmark example. <https://www.congress.gov/bill/116th-congress/house-bill/1361/all-info>

^{xxii} For example, recent changes were proposed to the Excise Tax Act, however, it is unclear if these changes were contemplated in applicability to the Income Tax Act and CRA's public guidance on digital currency or similarly how these definitions would align to charitable contributions or policy to promote innovation.

^{xxiii} See: EU Blockchain Observatory: <https://www.eublockchainforum.eu>. There have been early indications that the Government of Canada is open to this approach, see the announcement from Minister Murray launching the new Policy on Service and Digital (August 2, 2019): <https://www.canada.ca/en/treasury-board-secretariat/news/2019/08/minister-murray-launches-new-policy-on-service-and-digital-strengthening-commitment-to-digital-government.html>

^{xxiv} For example, AI has a dedicated innovation program, budget and incentives to position Canada as a leading destination as laid out in ISED's supercluster program: <https://www.ic.gc.ca/eic/site/093.nsf/eng/00008.html>

^{xxv} See, e.g., Tracing the Steel Industry Supply Chain (EN578-170003/22) (Dec. 6, 2018), <https://buyandsell.gc.ca/procurement-data/tender-notice/PW-18-00852561>.

^{xxvi} For example, the Ontario Securities Commission Regulatory Sandbox.

^{xxvii} See: Martin Patriquin, "Why Quebec is betting big on Bitcoin" (August 1, 2019): <https://www.cpacanada.ca/en/news/pivot-magazine/2019-01-08-bitcoin-quebec>. Canada is home to miners Hut8, BitFarm and a number of data (mining) companies.

^{xxviii} Pan-Canadian Trust Framework I Cadre de Confiance Pancanadien: https://canada-ca.github.io/PCTF-CCP/?source=post_page

^{xxix} Suzanne Rowan Kelleher, "Paradigm Shift: Biometrics and The Blockchain Will Replace Paper Passports Sooner Than You Think", Forbes (June 27, 2019) <https://www.forbes.com/sites/suzannerowan-kelleher/2019/06/28/paradigm-shift-biometrics-and-the-blockchain-will-replace-paper-passports-sooner-than-you-think/>. In March 2018, the citizens of Sierra Leone went to the polls and the country recorded votes at 70% of the polling to the blockchain using a technology that is the first of its kind in actual practice. The anonymously stored votes in an immutable ledger, thereby offering instant access to the election results. See: <https://techcrunch.com/2018/03/14/sierra-leone-just-ran-the-first-blockchain-based-election/>. Land registries also present opportunities for blockchain technology innovation and projects in Canada are beginning to emerge, including "Project Thunderbird" for aboriginal land title registry.

^{xxx} See: TrustBiX: <https://trustbix.com>

^{xxxi} Mark Koeppen, David Shrier, and Morgan Bazilian, "Is Blockchain's Future in Oil and Gas Transformative or Transient?" (2017) <https://www2.deloitte.com/content/dam/Deloitte/de/Documents/energy-resources/gx-blockchain-report-future-in-oil-and-gas.pdf>

^{xxxii} NAL, Blockchain for the Oil and Gas Industry (September 27, 2018): <https://www.ptac.org/wp-content/uploads/2018/10/Kevin-Stashin.pdf>

^{xxxiii} Petroteq, <https://petroteq.energy> as well as oil industry leaders including BP, Husky and Shell have all been referenced in relation to their use of blockchain to create supply chain efficiencies. See: "5 Companies Transforming the Oil Industry" (March 8, 2018): <https://www.baystreet.ca/stockstowatch/3256/5-Companies-Transforming-The-Oil-Industry>

^{xxxiv} See: Industry Canada: <https://www.ic.gc.ca/eic/site/101.nsf/eng/00053.html>

^{xxxv} Access Copyright, "Prescient Innovation Powered by Access Copyright" (October 17, 2018): <https://www.accesscopyright.ca/media/announcements/prescient-innovation-powered-by-access-copyright-reveals-its-plans-for-a-creator-focused-digital-ecosystem/>