



TAXATION OF THE TOKEN ECONOMY: CRYPTOCURRENCY AND DLT TOKENS

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1. Introduction¹

This paper is an attempt to provide a comprehensive framework for understanding the issues involved in the taxation of the “token economy”. The token economy is the use of “tokens” to securely, efficiently, and inexpensively trade valuable assets online through decentralized “distributed ledger technologies” (DLT) that eliminate the need for trusted intermediaries to effect those transactions, such as lawyers, accountants, brokerages, clearing houses, etc. Bitcoin is only one type of token, and the blockchain is only one type of DLT.

The token economy exploded in value in 2017, and 2018 has, to date, largely been a process of watching that bubble burst. Some see this as proof that the token economy was nothing but a utopian dream whose only utility was to enable fraudsters to circumvent regulations and exploit naïve investors who were too willing to believe that they could get rich, quick. There is no question this has occurred.

However, a more likely scenario is that 2018 represents a maturing of the technology and its participants, no different than occurred through the dot-com bust in 2000. DLT and the token economy are likely undergoing a transformative phase that will see the birth of new token platforms, applications and financial instruments that will live up to DLT’s potential to transform our economy in important respects. While prices have plummeted, the amount of capital raised from token “ICOs” in 2018 was almost five times greater than the amount raised in all of 2017. Whether tokens ever escape the clutches of the middlemen who profit as trusted intermediaries remains to be seen, but their development seems, to the authors, inevitable in any event.

The paper begins in section 2 by providing an introduction to distributed ledger technology and tokens. A working understanding of this technology is the starting point to understanding its taxation, and we hope this summary is useful for those who do not understand how the token economy works.

Sections 3 and 4 provide a high-level summary of the accounting and securities law issues raised by tokens. The accounting issues are obviously connected to any determination of taxable income under section 9 of the Income Tax Act (the “Act”).¹ The securities laws issues are connected to understanding how the tokens and their trading are regulated, and speak to some of the inconsistencies regarding how tokens may be treated for regulatory purposes versus how they may be treated for tax purposes.

Section 5 discusses the fundamental, and difficult, issues that must be settled in nearly every tax analysis. Who owns a token? Where does it exist for tax purposes? How should it be valued? Unfortunately, this section may raise more questions than it answers. But they are questions that every token tax analysis must ask.

Section 6 discusses the various types of property that tokens represent. We propose that there are, or will be, at least 17 different types of tokens. Most of these tokens, once understood, represent assets that already exist in “non-tokenized” format. In fact, this is the key point. The token economy is largely just a “tokenization” of property – tokens are a new form of digital instrument through which assets and derivatives can be traded.

Section 7 addresses the key technical tax issues that can arise in various circumstances, such as the creation of tokens through “mining”, the issuance of tokens through ICOs, forks, remuneration, and certain considerations arising from holding tokens outside of Canada – either directly or through a foreign affiliate.

¹ The authors would like to thank Rebecca Cynader and Cindy Chai of Farris LLP for their invaluable assistance in providing research and editing for this paper, and Ron Murray of Farris LLP for writing the Securities Law Overview in Section 3 of this paper. Any errors or omissions that remain are solely attributable to the authors.

A quick note on terminology. This paper will generally use the general term “tokens” instead of “cryptocurrency”, as tokens includes all cryptocurrency but cryptocurrency does not include all tokens. This paper will also generally use the term DLT instead of “blockchain” for the same reason. This paper will also generally avoid the use of the term “money” as it can refer to both legal tender currency and non-legal tender units of payment. Rather, it will use the term “fiat currency” to refer to government issued legal tender currency.

2. Crash Course on Tokens and the Token Economy

Tokens are a polarizing topic. Most people who understand blockchain or DLT are excited about its potential to transform commerce and businesses through its efficient and secure ledger-based applications. DLT itself, as a ledger technology, has the potential to become a standard technology underlying the following economic spheres:

- ***Record keeping and data protection*** - DLT can change the way in which we keep records, and protect and access data (financial, health, etc).
- ***Voting procedures*** – DLT can finally allow for internet voting versus the archaic act of paper ballots and vote counting that is common with voting methods today.
- ***Capital markets*** – Financial markets can be highly impacted by DLT replacing the need for clearing houses, exchanges, investment firms and credit institutions with more efficient and faster settlement practices.
- ***Intellectual property rights*** – DLT can protect intellectual property rights and make them more transparent through public ledgers.
- ***Title registry*** – DLT can provide more transparent and quickly accessible title registry for properties.
- ***Counterfeit protection*** – DLT can curb counterfeit products by validating their authenticity.

However, many people disagree as to whether tokens will be one of those transformative applications. Some argue tokens will revolutionize the way in which economies can unitize and exchange value, while others believe their application is limited and will necessarily disappear in time. The following discussion in this section is intended to provide readers with a conceptual understanding of why DLT was developed, how it works, and how tokens function and may be used as part of the DLT ecosystem. Understanding these concepts are essential to understanding how tokens might be, should be, and perhaps ought to be, taxed.

2.1 Peer-to-Peer Networks: Napster, then Bittorrent, then Bitcoin

Bitcoin was the first token ever created on the first fully functional DLT ever created. Bitcoin was first introduced by a whitepaper released on October 31, 2008, authored by an anonymous person or group of persons under the alias “Satoshi Nakamoto”.² The Bitcoin whitepaper outlined the mechanics for how to create a peer-to-peer version of electronic cash that would allow online payments to be sent directly from one party to another without needing to use any financial institution or other trusted third party to settle the transaction.³

The first Bitcoin transaction took place on January 3, 2009. In an online blog post in February 2009, Satoshi Nakamoto made clear that Bitcoin was not intended simply to serve as a convenient form of digital payment, but to transform and possibly replace conventional currency and the financial institutions that serve as currency’s necessary intermediaries:

The root problem with conventional currency is all the trust that's required to make it work. The central bank must be trusted not to debase the currency, but the history of fiat currencies is full of breaches of that trust. Banks must be trusted to hold our money and transfer it electronically, but they lend it out in waves of credit bubbles with barely a fraction in reserve. We have to trust them with our privacy, trust them not to let identity thieves drain our accounts. Their massive overhead costs make micro-payments impossible.⁴

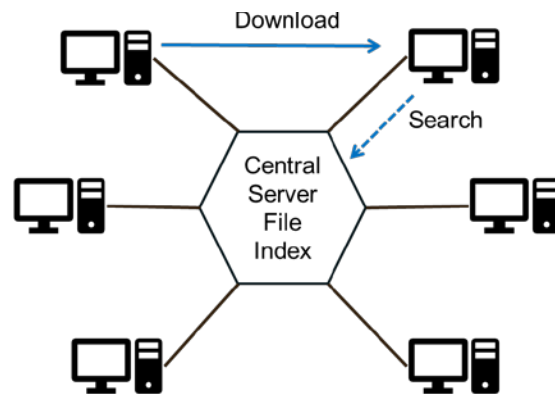
Bitcoin was designed to address: (1) debasement and inflation by strictly limiting the supply of bitcoins in the protocol; (2) the need for central control by building security governance in the protocol to prevent any person, entity, or government from controlling the network; (3) identity theft by using cryptography to protect the privacy of its users; and (4) the need for trusted financial intermediaries by building security protocols to remove the need for anyone to settle electronic payments between parties. These aspects of Bitcoin became the foundation on which DLT now enables anyone to exchange value peer-to-peer on the internet without involving banks, credit card companies, or other financial institutions.

(a) The Development of Decentralized Networks

Bitcoin did not come from nowhere. Rather, it represents a development in decentralized peer-to-peer filesharing and networking technology.⁵ Understanding this history is useful in understanding Bitcoin and DLT.

The first widely adopted peer-to-peer file sharing system was Napster, which enabled users to share files peer-to-peer through a centralized network.⁶ Users could download a file such as a MP3 directly from each other's computers by connecting through Napster. Napster hosted a centralized server that indexed users' files and enabled users to search that index to locate files they wished to download.⁷ The files were not held on Napster servers; rather they were held on the computers of those who were sharing and downloading files and transferred directly peer-to-peer. Napster simply connected the requesting user to the computer hosting the file.⁸ Figure 1 illustrates Napster's centralized peer-to-peer file sharing.

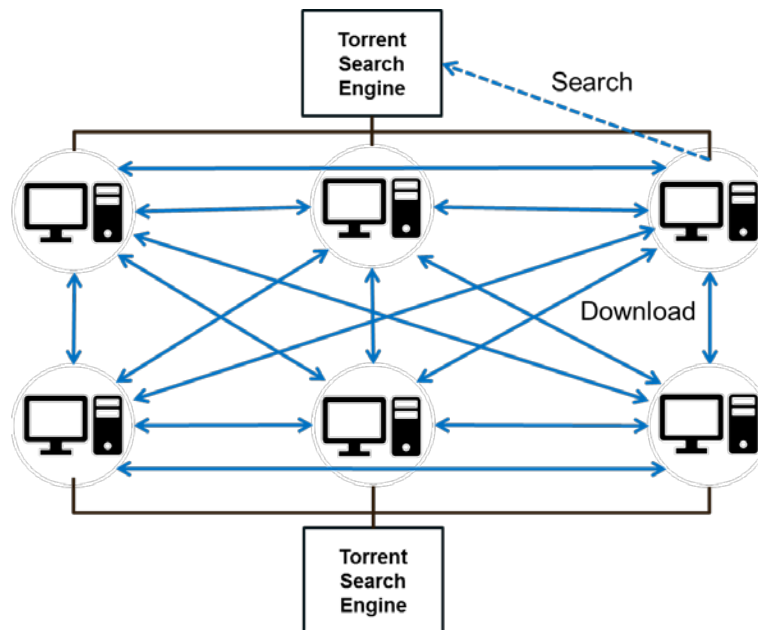
Figure 1: Centralized Napster File Sharing



Napster had two significant limitations. First, it required significant bandwidth because files were held on one computer and downloaded directly to another computer. During its peak, many colleges and universities banned access to Napster since it was using up most of their available bandwidth.⁹ Second, it relied on the Napster servers as a centralized depository of file addresses relied on by users to find each other.¹⁰

These limitations gave birth to the next significant development in peer-to-peer networking: the decentralized networking facilitated by the decentralized Bittorrent protocol.¹¹ The Bittorrent protocol enabled users to search for files on other computers directly through torrent search engines, and enabled users to download identified files from multiple users at the same time by splitting the files into small parts.¹² The upload and download work was divided among a network of hosts, and peer-to-peer file sharing suddenly became much faster as files could be shared without bottlenecks and intensive bandwidth usage.¹³ The decentralized nature of the Bittorrent protocol also made it difficult to attack (or shut down) since no central operator is required as was the case with Napster.¹⁴ Figure 2 illustrates decentralized filing sharing with Bittorrent.

Figure 2: Decentralized Bittorrent File Sharing



(b) Bitcoin: The Development of Value on Decentralized Networks

Bittorrent proved the possibility and efficiency of decentralized file-sharing. It also proved that a decentralized network only increased the ability for digital files to be replicated infinitely, with the result that digital files could not have economic value on the network. Bitcoin sought to build on the decentralized nature of Bittorrent but in a manner that enabled users to transfer value by preventing replication.

This problem of preventing replication of digital value on a network is generally referred to as the “double spend problem”.¹⁵ The double spend problem is the simple conundrum faced by a decentralized network where a file is intended to transfer value, but that value is eroded by the inability of the network to prevent users from replicating the file. If the file is a unit of “digital currency”, then its replication effectively means that the “digital currency” has been spent more than once, thus eroding its value.

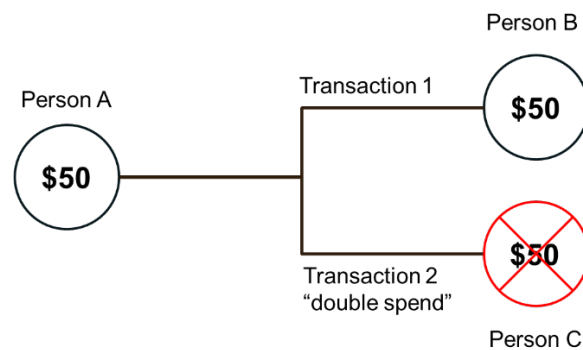
The double spend problem is illustrated in Figure 3, where Person A has only \$50 of digital currency and wants to send it to Person B in exchange for something Person B has. So Person A sends the digital currency file to Person B over a peer-to-peer network. But unknown to Person B, Person A then also sends the same digital currency file to Person C to acquire something he wants from Person C. If the file-sharing network allows Person A to send the digital currency file to both Person A and Person B, then Person A has “double

spent” the initial \$50. In fact, the double spend problem could very well be a “trillion spend” problem. The inability of file-sharing networks to prevent the replication of file transfers has made decentralized digital transfers of value impossible.

Until Bitcoin.

Bitcoin solved the double spend problem by creating a decentralized public ledger, referred to as distributed ledger technology (DLT). A DLT records every transaction involving a token on multiple computers (usually around the world), creating a decentralized ledger of every transaction between individual participants on the network, enabling all participants on the network to reject any further, duplicative transaction involving a token that has already been “spent”. The “blockchain” is the type of DLT that Bitcoin was invented on. On the Bitcoin DLT (the blockchain), any purported transaction will only be confirmed (or effected) once at least six other “nodes” on the network confirm that it is not duplicative (i.e., six successful audits).¹⁶

Figure 3: The Double Spend Problem



Referring back to Figure 3, if Person A enters into Transaction 1 with Person B, a network of computers around the world would check the ledger to ensure that Person A has the \$50 (denominated in Bitcoins) required in order to initiate the transaction. Once it is confirmed that Person A has the \$50, the transaction is approved and added to the ledger, which will now show that Person A sent the money to Person B and Person B now has that \$50. If Person A then tries to send the same \$50 to Person C, the network will quickly reject the transaction as the ledger will reflect that Person A has already sent the \$50 to Person B. The ledger is not like a normal accounting ledger which requires a double entry of a debit and credit; the ledger is simply a single entry ledger which tracks the address of a Bitcoin.

In the Bitcoin protocol, the keepers of the ledger are called “nodes”. Nodes are computers that run the Bitcoin protocol to keep the network secure. Nodes are not directly incentivized to run the protocol and thus are often considered to be volunteering their computing power to protect the Bitcoin network.¹⁷ However, it is likely the case that most nodes are operated by persons or entities holding Bitcoin and are thus indirectly incentivized to ensure that the network remains secure. As of the date of this paper there are over 9,000 Bitcoin nodes spread out over the globe.¹⁸ Each node keeps a full copy of the ledger and serves the function of confirming whether, in each attempted transaction, that Person A who started the transaction has the Bitcoin to send to Person B. The nodes also timestamp the transaction such that a second transaction involving the same token from the original holder cannot be entered again shortly thereafter. The timestamp puts the ledger in chronological order.¹⁹ The public ledger has a history of every transaction on the Bitcoin network all the way back to the original genesis block in 2009.²⁰

Once the transaction has been confirmed, to enable the transaction to complete, it must be recorded on a new digital record (“block”) of the DLT. This process of recording confirmed transactions on a new DLT block is generally referred to as “validating”, depending on the type of token and DLT. The validation process is designed to ensure that validators do not record false transactions. Bitcoin uses a “proof-of-work” validation process referred to as “mining” because the validator is rewarded with a “mined” bitcoin for performing the validation work. These validation processes are discussed in more detail in section 2.3.

The confirmation and validation process enabled by the DLT replace the need for a trusted party (i.e., financial institution) to settle transactions. Arguably, they not only replace but in fact improve on the security provided by a single financial institution, as trust in financial institutions is supported by further “assurance” audits by additional third party auditors to ensure the ledger maintained by the financial institution is accurate. A DLT does not require assurance since trust is automated by the decentralized protocol. Anyone using the Bitcoin network is free to transact with anyone in the world without an intermediary, creating a true peer-to-peer value-transfer network. Figure 5, below, illustrates traditional “double-entry” journalized records of centralized trust through a financial intermediary and Figure 4 illustrates the “single-entry” decentralized trust enabled through DLT.

Figure 4: Decentralized Trust

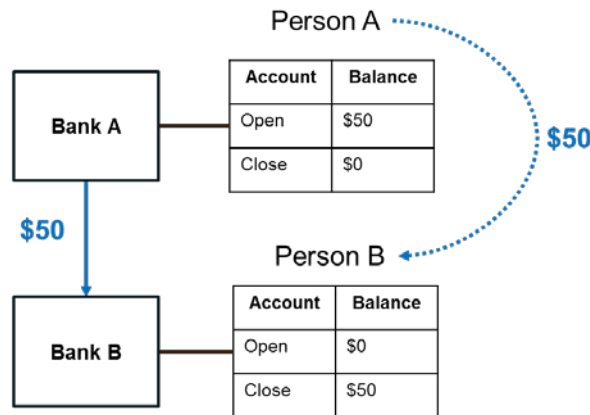
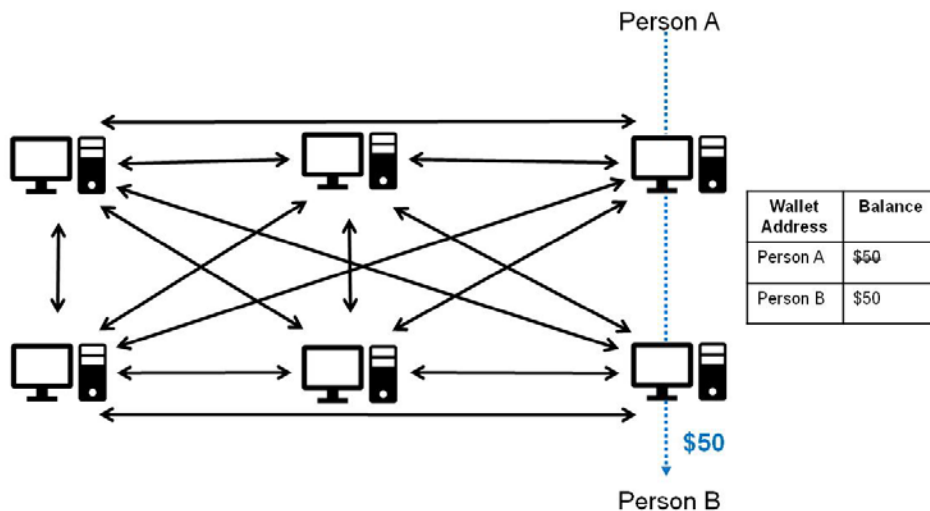


Figure 5: Centralized Trust



In solving the double spend problem, Bitcoin also solved the problem of digital scarcity, which is a prerequisite for ascribing value.²¹ Bitcoin achieves scarcity by capping the maximum number of Bitcoins that can ultimately be created on the protocol.²² Thus, Bitcoin can provide for a store of value even though it has no physical backing – as a function of the value ascribed to the protocol by the consensus of its users. As there is no centralized authority in the protocol, any change to the protocol requires consensus.

Bitcoin is also open-source, as the protocol's coding is available for inspection to any member of the public (together with the history of every transaction). Bitcoin's open-source protocol has allowed many developers and companies to build new DLT platforms based on the Bitcoin protocol. This has resulted in many new tokens being created on new DLT protocols which have been developed to include new capabilities beyond those envisaged by Bitcoin.

Just as the internet transformed communication, media and commerce, DLT and tokens may have similar transformative potentials.²³

Tokens represent a radical new way by which just about anything can be monetized within liquid markets, and as such have the potential to transform economies. This potential has driven many engineers to focus on how tokens may reshape many of the online services we use today. However, not everyone is convinced. Some observers believe that the advantages of DLT are overhyped, observing that DLT is inherently limited due to scalability limitations: DLT becomes less efficient as the number of users rise due to its need to continuously validate a database in multiple places to achieve consensus, versus the relative efficiency of a centralized authority only having to validate a given transaction once.²⁴ In late 2017, when Bitcoin had risen to a record top of almost US \$20,000, it became almost useless as a payment method due to network congestion making transaction validation too slow for most market purposes. These scalability issues will likely need to be addressed before most DLT token applications find broad market adoption.

Bitcoin developers have prioritized ledger security over speed, which can be increased through adding secondary layers such as the "lightning network" on top of the Bitcoin protocol (much like how the foundation protocol of the internet, TCP/IP, has many additional layers).²⁵ In the meantime, alternative payment tokens have sought to develop faster alternative DLTs to handle greater mainstream adoptions of micro payments. Many of these payment tokens can broadcast transactions within seconds and be sent any time of day.

2.2 DLT Assets (Tokens)

The DLT token community has broadly divided DLT tokens into three functional categories: (1) payment tokens (2), utility tokens, and (3) asset tokens.²⁶

(a) Payment Tokens

Payment tokens provide no claims on their issuer and are intended to be used as a broadly accepted medium of exchange for acquiring goods or services or as a means to transfer value, instead of fiat currencies.²⁷ Bitcoin is a primary example of a payment token. Payment tokens function in the digital world in much the same way that paper money functions in the physical world. Once the payment token is exchanged, the transaction is irreversible, much like how a cash payment is irreversible without force or consent.²⁸ Unlike cash, payment tokens allow for very fast digital transactions at extremely low costs, making them ideal for effecting cash-like transactions internationally. The reason payment tokens can do this is because they do not require any central institution to account, verify and approve the transaction.

One of the major disadvantages to payment tokens, and likely a key reason they have not been adopted more widely as a payment method, has been their volatility in value in comparison to fiat currency.

The volatility associated with payment tokens has resulted in the emergence of “stablecoins”, which are tokens whose value is pegged to assets, usually fiat currency. Stablecoins aim to take the volatility out of payment tokens by denominating the token, and backing the token, with commodities such as fiat currencies. One example is the Tether token, which is backed by US dollars, whereby one Tether token is denominated and redeemable by the issuer for one US Dollar.²⁹ However, stablecoins differ from other payment tokens in that they require a trusted third party to maintain their value – the issuer, or custodian of the commodities backing the token. Users must trust that the token issuer is adequately safeguarding the commodity backing the denominated value of the token.

(b) Utility Tokens

Utility tokens provide holders access to a digital platform, application, or service hosted or accessible through a native distributed ledger.³⁰ As such, utility tokens represent the value associated with the accessible platform, application, or service. Utility tokens generally have similar features to payment tokens; however, their use is generally limited to accessing their native platform or application.

Utility tokens enable the creation of decentralized applications and services that have the potential to disrupt centralized service providers.³¹ The first utility token was Ethereum, which was released in July 2015. Its co-founder, Russian-born Canadian Vitalik Buterin has stated:

Whereas most technologies tend to automate works on the periphery doing menial tasks, blockchains automate away the center. Instead of putting the taxi driver out of a job, blockchain puts Uber out of a job and lets the taxi driver work with the customer directly.³²

The market value of a utility token theoretically reflects the value of the demand, or anticipated demand, for the underlying platform, application, or service. The value perceived to be created through providing the platform, application, or service through a DLT and tokenizing its access is generally referred to as the token’s “use-case scenario”, which is really just industry-speak for the coin’s utility. Theoretically, as the perceived utility of the token rises, so does its value. To better understand utility tokens, it is helpful to consider some examples of existing utility tokens and the utility they aim to give to their holders.

Ethereum

Ethereum is the first and continues to be one of the most adopted platform utility tokens. Ethereum was designed to provide a DLT platform based on Bitcoin technology that enabled utility beyond only making payments, such as contracts between holders and issuers (referred to as “smart contracts”), escrow, voting rights, and almost any other function that is capable of being digitally coded.³³

Traditionally, contracts between two parties carry a counterparty risk of non-performance, which requires an intermediary to mitigate or protect against such risks at a cost. Smart contracts eliminate counterparty risk by automating the performance of the contract. For example, if Person A wants to make a bet with Person B over the outcome of a sporting event, they can enter into a tokenized smart contract to bet \$500 each, whereby the winner will receive \$1,000 depending on the outcome. The smart contract automatically collects \$500 in Ethereum from each party and pools the Ethereum in escrow, and once the outcome of the sporting event is known, the smart contract automatically pays the winner the escrowed Ethereum. Neither Person A or Person B can refuse to payout if they lose the bet (the counterparty risk in this example) since the funds are settled in escrow before the sporting event and the irreversible payout is done automatically on the Ethereum DLT upon the conclusion of the event.

Basic Attention Token

The Basic Attention Token (or BAT) is designed to monetize the economic value of a holder’s internet traffic, as an alternative to internet website publishers (on whose platform that traffic occurs) having the sole

ability to monetize that traffic through advertising revenue. Through the use of BAT tokens, advertisers compensate both the platform publisher and the users of that platform for the value generated to the advertiser. In the BAT ecosystem, advertisers give BAT tokens to both publishers based on the measured attention of users, and to platform users for participating on the platform. Users can transfer the BAT tokens back to publishers or exchange them for services on the platform.³⁴

Golem Token

The Golem DLT aims to create a worldwide decentralized supercomputer that combines the computing power of every machine on its network, and provide access to that computing power to buyers. In the Golem ecosystem, users can rent out their computer's spare resources to others who need the additional power to perform complex computations and tasks in consideration for Golem tokens, which are automatically paid out under smart contracts based on the computing resources used.³⁵

Binance Token

Binance is an online token exchange platform that allows users to trade a variety of tokens for other types of tokens held by other users. Binance created its own utility token that serves as a means for users to pay trading fees. Binance incentivizes users to use its platform using Binance tokens by requiring fewer Binance tokens than their fiat currency value equivalent. Accordingly, the value of the Binance token generally rises as more trading is done on the platform and the token becomes more useful. The fees that Binance theoretically forgoes by accepting Binance tokens is theoretically offset by the increased trading activity and the increased value of the Binance tokens retained by Binance.

(c) *Asset Tokens*

Asset tokens represent an interest by the token holder in tangible or intangible property assets, such as a debt, equity, participation in future company earnings or royalty streams, or other derivatives. Presently, few asset tokens have been issued. However, many industry experts expect these types of tokens to be more prevalent, and perhaps dominant, in the coming years, as asset tokens present the ability of asset holders to access untapped liquidity through DLT platforms.

Generally, most asset tokens carry custodial risk since the token holder must trust the issuer, both to secure the asset represented by the token, and not to defraud the token holder. Accordingly, while asset tokens can be exchanged in a trustless manner like payment or utility tokens, their underlying custodial risk requires some degree of centralized trust.

Tokenizing intangible or tangible asset rights may also allow for simplified fractional ownership, as tokenized fractions or parcels of property can be tracked and traded on a secure and shared ledger. Asset tokens have the potential to replace almost all existing securities traded in today's global financial system. By tokenizing securities, settlement times and costs can be greatly reduced as back-office costs associated with clearing houses, underwriters, exchanges, investment firms, credit institutions, and other trusted third-party institutions can be replaced by DLT technology. For example, both shareholder registers and dividends paid to shareholders could be fully automated through the DLT platform and smart contracts.³⁶

Those who doubt that tokens will become a standard on which equity or assets are traded should note that the Delaware State Legislature passed legislation on July 21, 2017 to expressly allow for the use of blockchain to maintain corporate share registries,³⁷ and several token protocols have been developed to specifically accommodate equity share tokens, including Ethereum ERC-884 which was developed to meet the Delaware standards.

Bitrent

Bitrent is an asset token that aims to enable anyone to become a partial owner of commercial and residential property around the world by connecting investors with developers without the need for intermediaries. By tokenizing commercial and residential property interests, the platform aims to reduce costs to developers of obtaining capital, and to facilitate investment from individual investors in pre-construction projects.³⁸

22X Fund

The 22X Fund token is an asset token that aims to provide investors with access to pre-vetted early stage startups through a collective investment scheme. The 22X Fund pools money raised from the issuance of the 22X Fund token to invest in startups. Holders of the 22X Fund token essentially profit when the fund earns returns from the growth, sale, or IPO of the startups. Holders of 22X Fund tokens profit from the growth by either trading the 22X Fund token as the value of portfolio of companies grows, or by receiving proceeds from liquidity events.³⁹

Documo

Documo is a company that is aiming to build a secure document exchange network on a DLT platform. The Documo token is an equity token representing share capital in Documo. Each Documo token represents 1 share of common B stock in Documo, Inc.⁴⁰

2.3 Creation of Tokens:

There are generally three methods through which tokens are created: (1) through a DLT transaction validation process, such as proof-of-work mining or proof-of-stake validation, (2) at first-instance by developers of a DLT ledger and transferred to investors, such as in an initial coin offering or “ICO”, or (3) through a “fork” of an existing distributed ledger.

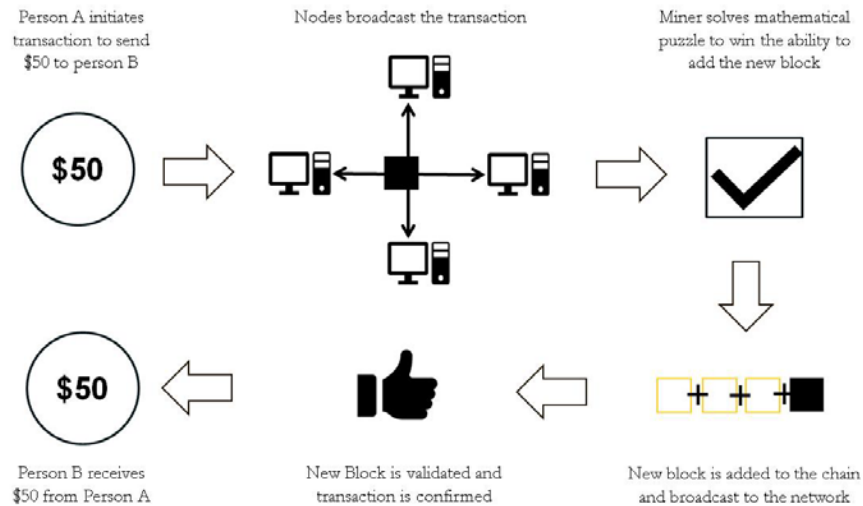
(a) Mining: Proof-of-Work

As discussed in section 2.1(b) of this paper, proof-of-work validation (“POW Validation”) is how Bitcoin transactions are validated by miners and nodes on the bitcoin DLT. There are different ways in which POW Validation can occur, but we will focus on Bitcoin POW Validation here, as most other POW Validation systems are derived from the Bitcoin process.

The main goal of POW Validation is to protect against double-spend transactions and secure the network from attacks.⁴¹ To incentivize users to assist in contributing to this security, the POW protocol provides POW Validators two forms of compensation for their efforts: (1) fractions of Bitcoins for validating transactions, and (2) newly created tokens as a reward for successfully solving an algorithmic puzzle to record the transactions on a new “block” of the DLT ledger. Currently, approximately 1,800 Bitcoins are mined in a single day.⁴²

POW Validators compete with computing power to solve a complex mathematical puzzle to win the ability to be the first one to add the transaction (block) to the ledger (blockchain). Once the POW Validator announces to the network it has solved the mathematical puzzle, the other POW Validators immediately stop working on that block and start trying to solve the mathematical puzzle for the next block. By being the first to broadcast the new block, the POW Validator is rewarded in newly minted tokens. The POW Validation process is illustrated in Figure 6 below.

Figure 6: POW Validation⁴³



POW Validation achieves incredible security because it takes significant resources to try to solve the algorithmic problem to record transactions on a block – the process requires specialized CPU computing power and tremendous amounts of electricity to run those CPUs. But once solved, the solution can be easily confirmed by other nodes (achieving consensus) without requiring any energy. The amount of energy required to validate transactions functions together with Bitcoin’s consensus mechanisms to provide what is thought to be one of the most secure and non-corruptible ledgers technologies in existence today.⁴⁴ This makes it very expensive, and very unlikely, that anyone will be able to record false transactions and corrupt the ledger.

While the validation and consensus process makes POW strong from a security perspective, it is inefficient from a resource perspective. Bitcoin miners are compelled to participate in an arms race to continuously deploy more resources in mining.⁴⁵

POW Validation is commonly referred to as “mining” as it is the process of performing work for the “discovery” of new tokens. However, these terms are misleading. Actual miners of gold or other metals own the rights to the metals on a particular piece of real property, and are thus incentivized to work to discover those metals and extract them. In contrast, Bitcoin “miners” have no right to anything and there is no guarantee that they will successfully solve the necessary algorithmic problem and receive new Bitcoin as a reward. The miners on a POW protocol have no stake or equity in the protocol; they are simply providing a service through computing power with the aim to be rewarded in transaction fees and newly issued tokens for performing the services.

As miners are rewarded in Bitcoin through POW Validation, they then sell or spend the tokens, which brings the new tokens into the circulation supply. The Bitcoin protocol is predetermined to have a supply cap of 21M tokens, and as at the date of this paper 17.2M Bitcoins have been mined and are in circulation.⁴⁶ The Bitcoin protocol also contains a halving mechanism for the creation of new Bitcoins. Every four years or so, the amount of Bitcoin that can be mined is reduced by 50% and all Bitcoins are expected to be mined by the year 2140. Once all 21M tokens are in circulation, the miners will only earn transaction fees as incentive to validate transactions.⁴⁷

(b) Staking: Proof-of-Stake

Proof-of-stake validation (“POS Validation”) is an alternative validation method to POW Validation. Essentially, proof-of-stake aims to achieve a secure ledger protocol without the need for the expensive and inefficient electrical and computing power required in proof-of-work.

To accomplish this, POS Validation builds secure consensus by providing existing token holders with an incentive to correctly validate transactions: existing nodes “stake” their tokens on the DLT and are rewarded for correctly recording transactions by receiving newly created tokens and punished if they attempt to incorrectly record transactions by losing the tokens they staked. For example, if a stakeholder holds 1% of all issued tokens they can validate 1% of all transactions and receive the allotted reward for doing so. Accordingly, instead of computing power, the probability to receive a reward is proportional to a user’s ownership stake in the network. Of course, this is a highly generalized explanation of POS Validation, as these methods can still involve complex algorithms and capping protocols limiting the amount of transactions any single stakeholder can validate.

POS Validation, on its own, is theoretically more prone to security hacks than POW Validation, as it is susceptible to game theory or “51%” attacks.⁴⁸ However, such attacks require bad actors to own large amounts of tokens to achieve this, such that the bad actor would be effectively corrupting their own assets. Various mathematical protocols, such as consensus-by-bet introduced by Casper, increase the incentive of consensus to a degree that makes fraud extremely difficult.⁴⁹

(c) ICOs & ETOs

The primary alternative to the creation of tokens through a validation process (such as POW and POS), is for a DLT founder/developer to simply create a specified number of tokens as a batch on the DLT, and then issue them into circulation. This requires nothing more than the founder writing several lines of code setting the number of tokens on the DLT.

This type of token creation is commonly used in initial coin offerings (ICO) of utility tokens and asset tokens. In the case of a utility token ICO, the DLT founder simply creates the tokens on their DLT and issues them to purchasers for consideration to provide the founder with capital to develop their business in which the tokens will be used. Generally, founders of the tokens will keep a number of the created tokens as an incentive for them to develop the platform or application they have promised to build, and to use to pay contractors and employees engaged to help build it.

Asset tokens also generally employ this type of token creation. For example, an issuance of equity tokens will generally occur through an equity token offering (ETO) whereby a company creates a specified number of tokens representing treasury shares in the company and then issues those tokens to equity investors.

In the first half of 2018, 706 ICOs have raised almost US\$18 billion from institutional and individual investors. This is a significant increase in the amount of money raised in the whole of 2017, which saw around 221 ICOs raising approximately US\$3.7 billion.⁵⁰

(d) Airdrops

In an airdrop, the administrators of a DLT can deliver a specified number of newly created tokens to persons already holding existing tokens on the DLT, or to persons who meet specified criteria – such as holding more than a specified number of tokens. Generally, airdrops are delivered for free and are commonly used for marketing campaigns to create an awareness for the new token project.⁵¹ The creation of the tokens in an airdrop occurs the same way as in an ICO: the founder simply creates the tokens on the DLT and then issues them to wallets meeting the specified criteria.

(e) Forks

A third way tokens get created is through “forks”. The most common type of fork is a “hard fork”, which is essentially the process of copying an existing DLT to create a new version of the DLT with new properties, with the result that token holders of tokens on the original DLT will continue to hold their original token, but can also hold a new token on the new, revised DLT (which is generally referred to as a “forked token”).⁵² Token holders are generally required to collect the forked token through a process of demonstrating possession of the original token. If a token holder fails to take the required steps to collect the forked token, they will never receive it.

It should be noted that a hard fork is different than a “soft fork”, which generally refers to a change in the blockchain code without creating a new separate version. Soft forks are comparable to a software update, where the tokens exist on the new version in the same way as they existed on the old version.⁵³

The Bitcoin blockchain is the most commonly hard forked blockchain. The creator of the forked coin essentially takes a snap shot of the public ledger at a moment in time, makes changes to the protocol, then launches the alternative token to owners who held the forked token at the time of the snap shot. Bitcoin Cash was a fork of the original Bitcoin blockchain that was made because the promoters of Bitcoin Cash wanted to change the original Bitcoin protocol to change the size of blocks on the Bitcoin blockchain to increase scalability. The fork resulted in every Bitcoin holder being entitled to receive an equal amount of Bitcoin Cash at the time of the snap shot of the Bitcoin ledger (i.e., if you held one Bitcoin at the time of the snap shot you would have been entitled to receive one Bitcoin Cash token). Unlike the other forms of token creation in which you are either performing a service to be rewarded in token, or providing seed funding to receive a token, if you are the recipient of a token from a hard fork, you are essentially receiving an asset for free.

2.4 Ownership

(a) Wallets and Keys

Token holders are said to hold their tokens in “wallets”, but this can be misleading. Tokens are a ledger entry on the DLT, which exists in duplicative form across the DLT nodes around the world. As such, token holders do not “hold” tokens in any one place. A token wallet is simply a set of codes enabling a token holder to access and transact with their tokens on the DLT. A wallet is comprised of two sets of codes. The first code is called the “public key” or “public address”, which enables the wallet holder to receive tokens. Similar to using an email address, when someone wants to transfer a token to another person they send it to that person’s public wallet address on the DLT.⁵⁴ Once this transaction is validated on the DLT, the token is then recorded on the DLT as belonging to the user at that public address. Below is an example of a bitcoin public wallet address:

36EEHh9ME3kU7AZ3rUxBCyKR5FhR3RbqVo

The second code is called the “private key”, which is a cryptographically secure code that is required to send a token from one public wallet address to another. The private key is similar to the concept of a PIN number for a debit card.⁵⁵ Anyone that has access to the private key can transfer the tokens in a wallet to another address. Having access to a private key is like having access to the combination for a vault with cash.

The most secure way to store private keys is arguably on a cryptographically secure wallet hosted on a USB flash drive – generally referred to as a USB wallet. A USB wallet is said to be a “hot wallet” when it is connected to the internet, and a “cold wallet” when it is disconnected.

Perhaps more commonly, many token holders use wallets hosted on the servers of the token exchanges that they use. The token exchanges provide users with hosted wallets as a service to facilitate trading on their platforms. Token holders can also use wallets hosted by other online third-party providers that are not exchanges. These exchanges and online wallets are generally always hot wallets.

Hot wallets are generally seen as only safe for small value amounts of tokens since a device connected to the internet is potentially susceptible to hacking (the equivalent to having cash in your pocket). Cold wallets are usually used for large value amounts of tokens since the private keys are kept offline and inaccessible to a hacker (the digital equivalent to holding them in a vault).⁵⁶

(b) Exchanges

Token exchanges are the primary on-ramps and off-ramps between fiat currencies and the token economy (payment, utility, and asset tokens). Tokens can also be acquired through over-the-counter (OTC) transactions, cash transactions, and by receiving tokens as payment for goods and services. Exchanges generally require some form of know-your-client (KYC) verification in order to access their platform due to the potential application of money laundering laws. OTC and cash transactions can avoid KYC processes.

3. Securities Laws: Brief Overview

(a) Can Tokens Constitute “Securities”?

Canadian securities regulators have made it clear that, in their view, many cryptocurrency offerings of “coins” and “tokens”, including those commonly referred to as “utility tokens”, will involve the issuance of “securities”. This is because such coins or tokens typically constitute “investment contracts” (which are deemed to be securities) when the totality of the offering or arrangement is considered.

The fact that securities regulators generally view utility tokens to be securities can come as a surprise to newcomers in the industry. However, securities regulators have made it clear that they have seen many businesses offering tokens to raise capital for the development of software, an online platform, or an application that are clearly securities, despite the fact that such tokens had one or more utility functions and provided no right of participation in the profits of such platform or application.

In determining whether an investment contract exists, the case law has developed a purposive test, which includes considering the objective of investor protection. It is important to note that securities regulators are of the view that the risk of investor loss in the context of token offerings is particularly high. As a result, they have been reluctant to provide guidance as to when a token will not be considered a security, other than in the most obvious of cases. For example, they have noted that a token that allows an individual to play video games on a new platform, but which offers the holder no ability to participate in the profits or success of the platform, may not constitute a security.

The test for an investment contract developed by Canadian courts (known as the “Pacific Coin test”), involves a determination of whether the offering involves:

1. an investment of money,
2. in a common enterprise,
3. with the expectation of profit,
4. to come significantly from the efforts of others.

A similar test referred to as the “Howey test” exists in the United States, on which the Pacific Coin test was largely based.

In analyzing whether an offering of tokens involves an investment contract, securities regulators do not place a great deal of weight on the technical characteristics of the token itself; rather, they look to the economic realities of the offering as a whole, with a focus on substance over form. In and of itself, it is not enough that a proposed offering of tokens is intended to be used in software, on an online platform or application, or to purchase goods and services.

By way of illustration, consider the case of Munchee Inc., a California-based company selling digital tokens to investors to raise capital for its blockchain-based food review service. After being contacted by the United States Securities and Exchange Commission (SEC), Munchee halted its ICO, refunded investor proceeds and agreed to an SEC cease-and-desist order as a result of Munchee's unlawful sale of securities.

Munchee was seeking to raise US\$15 million in capital to improve an existing iPhone app centered on restaurant meal reviews and to create an "ecosystem" in which Munchee and others would buy and sell goods and services using the tokens.

According to the SEC order, during the course of the offering, Munchee and other promoters emphasized that investors could expect that efforts by Munchee and others would lead to an increase in the value of the tokens. Munchee also emphasized that it would take steps to create and support a secondary market for the tokens. Because of these and other activities, the SEC determined that investors would have had a reasonable belief that their investment in tokens could generate a return on their investment. In other words, the Munchee utility token constituted a security because "profit" was expected to be derived from the managerial and entrepreneurial efforts of others.

On the other hand, senior staff of the SEC have recently confirmed that certain digital coins, such as Bitcoin and ether, do not constitute securities in light of (in the case of Ethereum) "the present state of ether, the Ethereum network, and its decentralized structure".⁵⁷ However, SEC staff left open the possibility that earlier investments in ether, before the platform became truly decentralized, could have constituted securities.

In addition to whether a token constitutes an investment contract, other elements of the definition of a security may apply, and Canadian securities regulators have confirmed that a token could also constitute a derivative.

(b) What are the Implications of Tokens Being Securities?

Canadian and United States securities laws prohibit the sale of securities without filing a prospectus with securities regulators. This is how a company would traditionally undertake an IPO.

There are exemptions to the prospectus requirements that allow entities to sell securities to investors who qualify as "accredited investors", or (in Canada) to prepare an offering memorandum (an OM), which is a comprehensive disclosure document that is delivered to investors and which contains specified disclosure, including audited financial statements. While most entities proposing to undertake an ICO publish a "whitepaper", which includes details about the token, the entity issuing the token and the ICO itself, most, if not all, whitepapers do not include the necessary information required for the whitepaper to constitute an OM.

Even if a prospectus exemption were available, securities sold under an exemption will be subject to resale restrictions, which would generally preclude the tokens from trading on cryptocurrency exchanges.

Apart from the prospectus requirements applicable to the sale of securities, securities laws also seek to protect investors by requiring individuals or entities engaged in the business of trading in securities to be registered with securities regulators. Among other "business triggers", securities regulators will look to factors such as whether the entity is (i) soliciting a broad base of investors (including retail investors), (ii) using the internet

(including public websites, discussion boards, etc.) or attending public events to promote the sale of its tokens, and (iii) raising a significant amount of capital from a large number of investors.

(c) The Current Securities Regulatory Environment

While ICOs have been on the radar screen of securities regulators for some time, the growing amount of capital being raised has attracted increased regulatory scrutiny. For example, in April 2018, members of the North American Securities Administrators Association (NASAA) began a coordinated series of investigations into ICOs and cryptocurrency-related investment products. Those investigations identified hundreds of ICOs being advertised on ICO aggregation sites to attract investor interest in planned cryptocurrency offerings, and has led to the commencement of a number of enforcement actions and many ongoing investigations. All indications are that there will be an increasing number of enforcement actions brought by securities regulators in the cryptocurrency space.

4. Accounting Rules: Brief Overview

To date, the International Accounting Standards Board (IASB) has not provided guidance in respect of International Financial Reporting Standards (IFRS) and cryptocurrencies.⁵⁸ Consequently, entities may be accounting for cryptocurrencies differently given the challenges associated with identifying what type of asset a specific token represents within the existing IFRS guidelines. It is important to note that all commentary to date provided by public accounting bodies has been strictly in respect of payment tokens. Accordingly, the following discussion will only address accounting for payment tokens.

(a) IFRS Asset Classification

The Chartered Professional Accountants of Canada (CPA Canada) released a publication in May 2018 addressing the primary issues surrounding the application of holding tokens under IFRS.⁵⁹ The publication specifically addressed only payment tokens (like Bitcoin) or tokens that are used as a medium of exchange, and what asset they may be considered to be under existing IFRS Standards. The following is a high-level summary of the asset types and conclusions made by the authors for payment tokens.

| Asset Type | Conclusion |
|--------------------------------------|---|
| Cash or Cash Equivalent (IAS 7) | Payment tokens are not cash since they are not legal tender in most jurisdictions and have limited medium of exchange compared to most traditional fiat currency. Payment tokens are likely not cash-equivalents because they do not have a short-term life, often have significant short-term value changes, and often there are constraints on the liquidity of payment tokens and their conversion to fiat currency. |
| Non-cash Financial Asset (IAS 32) | Payment tokens do not have a contractual right to receive cash or another financial asset from another entity or to exchange financial assets or financial liabilities with another entity under conditions that are potentially favourable to the holder; therefore, they are likely not a non-cash financial asset. |
| Investment Property (IAS 40) | Payment tokens, while they may be held for capital appreciation, they are not generally intended for capital appreciation or to earn rental income; therefore, they are likely not investment property. |
| Intangible Asset (IAS 38) | An intangible asset is generally defined to include identifiable non-monetary assets without physical substance. Non-monetary assets are those which can be received in fixed or determinable amounts of money. Payment tokens are generally identifiable without physical substance and are non-monetary assets; therefore, they are likely intangible property. |

| | |
|----------------------|---|
| Inventory (IAS 2) | Payment tokens may be considered inventory depending on whether the holder is an entity who is a commodity broker-trader. |
|----------------------|---|

The authors conclude that payment tokens likely fall under the definition of intangible assets (when not inventory if the entity is considered a commodity broker-trader) found within IAS 38. The Australian Accounting Standards Board (AASB) released a similar report in December 2016 which generally arrived at the same conclusions and also concluded that payment tokens likely represent intangible assets under IAS 38.⁶⁰

Pursuant to IAS 38, intangible assets are either recorded at cost under the cost method, or at fair value under the revaluation method. Under the cost method, the asset is generally recorded at cost and any impairment charges⁶¹ are recorded in the statement of profit and loss. The revaluation method would only be available in respect of payment tokens if there is an active market⁶² which can determine their fair value.⁶³ The following is from the CPA Canada publication:

Under the revaluation method, the accounting for change in fair value is more complex: increases in fair value are recorded in other comprehensive income (OCI), while decreases are recorded in profit or loss. Under IAS 38, there is no recycling of gains from OCI to profit or loss. However, to the extent that an increase in fair value reverses a previous decrease in fair value that has been recorded in profit or loss, that increase is reported in profit or loss. As a result, the cumulative effect on profit or loss includes the net decrease in fair value of cryptocurrency over time. Similarly, a decrease in fair value that reverses a previous increase is recorded in OCI, resulting in the cumulative effect on OCI being the net increase in fair value of the cryptocurrency over time.⁶⁴

Although the AASB's report agreed with this conclusion, they took the position that IAS 38 does not provide the adequate guidance for dealing with payment tokens since IAS 38 was intentionally designed around assets without physical substance that are used in the production of cash flows and not designed to deal with items held for speculative, investment, or cash-like purposes.⁶⁵ They generally argued that both the cost method and revaluation method are inappropriate or not well-suited for payment tokens as the cost method would only recognise decreases in value, and the revaluation approach does not always reflect the profit and loss appropriately in reflecting the performance of an asset held for speculative purposes or cash like features.⁶⁶ The AASB's report concluded that payment tokens should fall under fair value measurements which are reflected through the statement of profit and loss even though this is not available under IAS 38. The following are the positions in the AASB's report:

Furthermore, we believe that recognising changes in fair value through profit or loss would also incorporate accountability of the holding decision, as these assets are more akin to investment properties and financial instruments that are generally fair valued through profit and loss.

In [the AASB's] opinion, fair value measurements are the most appropriate measurement basis for both the statement of financial position and the statement of financial performance. Furthermore, we believe that the most relevant and useful information would be if changes in fair value are present in the statement of profit or loss.⁶⁷

(b) IFRS Valuation Method

If payment tokens are adjusted to fair market value under the revaluation method in accordance with IAS 38, then determining their fair market value falls under the guidance of IFRS 13. IFRS 13 provides for a fair value hierarchy that is divided into three levels with precedence in order of the level:⁶⁸

Level 1 – Quoted market prices.

Level 2 – Observable inputs other than quoted market prices.

Level 3 – Unobservable inputs.

For Level 1, there needs to be an active market in which transactions for the asset or liability take place with sufficient frequency and volume to provide pricing information on an ongoing basis.⁶⁹ Most tokens are traded on cryptocurrency exchanges; thus, they may or may not have an active market depending on the trading volume of a token across various exchanges. If there is more than one active market, generally, the trading price should reflect the market with the largest trading volume and level of activity for the token.⁷⁰ It is also important that the active market must be available to the entity holding the tokens (i.e., the entity can access an active market outside of the jurisdiction in which the entity resides if there is no active market for the jurisdiction of residence).⁷¹ This is important because the quoted price of tokens on exchanges around the world can highly differ due to the liquidity of the market in a given jurisdiction as well as differences in government regulations and currency controls.

An entity will need to consider whether there is an active market on a token by token basis. It is important to note that if it is established that an active market exists, there is no liquidity adjustment for the size of the entity's position in a specific token.⁷² IFRS 13:80 states:

If an entity holds a position in a single asset or liability and the asset or liability is traded in an active market, the fair market value of the asset or liability is measured within Level 1 as the product of the quoted price for the individual asset or liability and quantity held by the entity, even if the market's normal daily trading volume is not sufficient to absorb the quantity held and placing orders to sell the position if a single transaction might affect the quoted price.

Therefore, IFRS 13 does not allow one to adjust fair market value of a token for possible slippage on the sale of tokens. If an entity holds a large position in a specific token, and that token does not have the daily trading volume needed to absorb the sale of all tokens at once the stated fair value may be less than what is recorded on the financial statements. For example, if an entity holds 1,000,000 units of a token which is traded at \$0.50 with daily trading volume less than the number of units held by the entity, if those tokens were market sold all at once the final proceeds would likely be much less than \$500,000 (1M x \$0.50) since the trading price would drop as the entity tried to fill their sell orders. Provided how thinly traded most tokens are since often they are created out of thin air, recording tokens at their trading value might without a liquidity adjustment may not be reflective of their fair market value for financial statement purposes.

Level 2 considers inputs other than quoted market prices for the token, such as quoted prices of similar assets with active markets or inputs such as interest rates, implied volatilities, credits spreads, etc. Level 3 considers where there are no observable Level 2 inputs available, and generally allow for an entity to develop inputs based on the best information available to them which may consider the entity's own data or information about market participation that is reasonably available.⁷³ Level 2 and Level 3 may be relevant where an entity is participating in or issuing tokens in an initial coin offering where no quoted market prices are yet available for the new token.

(c) Disclosures

Given the lack of appropriate guidance available for the financial reporting of cryptocurrencies, it is important that entities provide as much disclosure as possible regarding their intention with the tokens and information regarding the tokens they hold. The CPA Canada report recommended the following additional disclosures entities should make regarding tokens:

- A description of the cryptocurrency, its important characteristics and the purpose of holding it (e.g., investing, buying goods and services).
- The number of units of the cryptocurrency held at year end.
- How the accounting policy was determined.
- If the cost method is used, the fair value for the cryptocurrency together with the appropriate IFRS 13 disclosures.
- Information on the market risk associated with the cryptocurrency (e.g., historical volatility).⁷⁴

5. **Taxation: Fundamental Issues**

The taxation of income and gains from tokens faces four primary practical challenges: (1) the anonymity of token holders, (2) the difficulty in determining ownership of tokens, (3) the difficulty in determining a token's value, and (4) the difficulty in determining the location in which tokens can be said to be located, and thus the jurisdiction in which any income and gains arising from the tokens should be subject to tax. These challenges arise from the intersection of the unique DLT underlying tokens, and tax concepts whose development to date remains largely unsuited to address this technology. There are no clear solutions to these challenges. While the authors present their views here as to how these challenges might be addressed in the short term, Canadian tax law will likely require either new rules or administrative guidance on suitable solutions.

5.1 **Anonymity**

(a) ***“Pseudonymity”***

One of the apparent paradoxes of DLT technology is that while it can provide one of the most secure and publicly accessible databases of historical transactions, it does not identify the persons and entities transacting on it. Token holders, buyers and sellers are not generally identified on DLT, whether by name, bank account, social insurance number, or other method.⁷⁵ This anonymity has been a fundamental aspect of the architecture of blockchain technology and tokens since its original conception in Bitcoin: “The goal of Bitcoin was to provide a network where “pseudonymous entities” could transfer value online, using a decentralized medium, free from government interference.”⁷⁶ This is tellingly illustrated in the fact that Bitcoin first achieved global recognition from its use by WikiLeaks supporters as a work-around to the restrictions placed on making donations by various governments.⁷⁷

However, while holders and users are not directly identified, it is possible to associate token transactions with the IP addresses associated with those transactions – either through specialized programs that monitor activity on a blockchain (the blockchain itself does not record IP addresses), or through records of IP addresses kept by internet service providers (ISPs). The IP address effectively becomes the pseudonym of the holder and user, such that they are said to be “pseudo-anonymous”,⁷⁸ and provide “pseudonymity”.⁷⁹

With sufficient effort, nearly every token, transaction and wallet can be traced to the IP address through which the participant held or transacted with the token. If the IP address is registered in the name of the participant, the identity of the participant can be obtained. In some ways, this makes tokens less anonymous than cash, as cash cannot be readily traced to anyone. Other authors have commented on the traceability of tokens:

Bitcoin’s method of clearing payments—the peer-to-peer hashing that eliminates the need for third parties—is open to the public; that is, every transaction on the Bitcoin network is available for inspection by users, the public, and tax authorities. There is no central database in which to find the owners—or even the wallets—attached to Bitcoin addresses; however, since the records of every transaction are public, “[o]fficials trying to identify a particular address will have a complete record of every address that’s ever sent money to, or received money from, that address.” If those transacting addresses are within the jurisdiction of the authority, authorities

can compel Internet providers and other businesses to “disclose details (IP addresses, shipping addresses, contact email address, etc.) that could help identify the address’s owner.” While the information obtained in this fashion may be incomplete, it would provide relevant authorities with significant information with which to conduct “basic detective work,” especially with respect to casual users of the Bitcoin client. Similarly, the FBI concluded that “law enforcement can discover more information about, and in some cases identify, malicious actors, if the actors convert their bitcoins into a fiat currency.”⁸⁰

However, sophisticated participants who value their anonymity can make themselves very difficult to identify. The simplest way is to effect the exchange using cash, either offline by way of physical delivery of a USB wallet or delivery of the tokens to an online wallet for cash – in either case, nothing identifying the cash purchaser would be recorded on the blockchain. A second and more common method is for online participants to hide their identity by hiding their IP address through a sufficiently secure VPN service, proxy server, or by using public Wi-Fi (although this doesn’t work for an initial electronic cash exchange transaction). Among some participants, it is “standard practice to use a new [IP] address for each incoming payment. This way, there’s no link between different inbound transactions.”⁸¹ Third, a number of tokens have developed blockchain technology that makes the IP identity of transaction counterparties effectively impossible to trace and hides the identification of each participant’s wallet. These tokens are effectively anonymous and are generally referred to as “privacy tokens”.⁸²

The practical effect of the foregoing is that it takes government authorities a substantial amount of effort to identify token holders who have not taken steps to remain anonymous and it is practically impossible to identify token holders who have.

However, the anonymity of tokens has a fatal weakness: the exchange of tokens for fiat currency. Most token holders buy and sell tokens for fiat currency electronically – usually by credit card or by wire transfers between their bank, an online vendor, or exchange (“electronic cash exchange transactions”). This transaction links the buyers’ and sellers’ identity to their wallet and the purchased token. From there, every transaction involving that token and wallet can be traced on the blockchain, backwards from a seller and forwards from a buyer. Hiding behind IP addresses has some application in obscuring the user’s identity from that point, but it is limited. The only way in which token holders can avoid this fatal flaw in their anonymity is by purchasing tokens with physical cash in exchange for a physical USB wallet (not an uncommon practice). However, this reality demonstrates that the issue of anonymity lies more with cash than blockchain technology and tokens.

The second way in which a token holder’s anonymity is revealed is where a holder has exchanged their tokens for a good or service, the delivery of which requires the holder to be identifiable.⁸³ However, such users are not generally concerned with their anonymity.

(b) Criminal Potential

Tokens’ practical anonymity has obvious criminal application. When this anonymity is combined with tokens’ inherent security and ease of international payments, it is easy to understand regulators’ concerns that payment tokens such as Bitcoin have made criminal activity harder to discover than ever before. For example, buyers and merchants on Silk Road, the infamous darkweb marketplace, used Bitcoin as the sole method of settling transactions.⁸⁴ Silk Road was primarily used to trade narcotics and illegal weapons. The FBI shut down Silk Road in October 2013, and seized 26,000 of the owner’s Bitcoins, which were worth approximately USD \$3.6 million at the time (Bitcoin then traded for between \$100 to \$200).⁸⁵ Silk Road is likely only a drop in the bucket of criminal use of payment tokens. Similar concerns have been voiced regarding using payment tokens to fund terrorism. However, some analysts have argued that payment tokens may provide an easier trail for government authorities to follow than the underground cash transfer systems that existed prior to Bitcoin.⁸⁶

(c) *Laundering Potential*

Equally problematic is the ability for criminal enterprises to launder illicit gains earned in fiat currency using tokens. The method is relatively simple: employing multiple buy and sell transactions using “washed” IP addresses that are all but impossible to trace back to the original cash. Sophisticated token experts have begun to offer automated laundering services.⁸⁷ The crypto community is alive to this issue, and many exchanges have taken steps to comply with anti-money laundering record-keeping and reporting requirements to avoid being associated with laundering accusations and the associated regulatory burdens.⁸⁸ Many companies conducting ICOs have similarly adopted best-practice KYC procedures.

Canada’s response has been to amend its *Proceeds of Crime (Money Laundering) and Terrorist Financing Act* (MLTFA) in June 2014 to provide that persons “dealing in virtual currencies” are regulated as a “money services business”.⁸⁹ However, the phrase “dealing in virtual currencies” has not yet been defined for purposes of the MLTFA.

It is likely that token use in general will become subject to increased regulatory oversight to deal with money laundering concerns. In 2016, a decision by the Eleventh Judicial Circuit in Florida dismissed a criminal information against a defendant accused of money laundering on the basis that virtual currencies such as Bitcoin were not “money” as defined by Florida’s Money Laundering Act.⁹⁰ In response, Florida’s Money Laundering Act, was revised effective July 1, 2017 to expressly prohibit the laundering of virtual currency, which the bill now defines as “a medium of exchange in electronic or digital format that is not a coin or currency of the United States or any other country.”⁹¹

Many US states require vendors of tokens to be licensed to “transmit money”, including Alabama, California, Colorado, Connecticut, Georgia, New York, North Carolina, Pennsylvania, Vermont and Washington.⁹²

(d) *Positive Aspects of Anonymity*

Despite the negative associations often made regarding the anonymity of tokens, there are in fact many positive aspects as well.⁹³ The anonymity can protect individuals from criminals by hiding a person’s wealth, or protecting confidential personal transactions such as purchases of medical goods or services.⁹⁴ Using traditional payment systems, people are required to reveal their identity to a central party and trust that central party to protect their privacy – which central trusted party often fails to maintain that privacy. In the age of digital hacking, the breach of trusted third-party secure information is only increasing. Tokens accelerate the potential of digital payment systems, while maintaining the privacy of cash transactions.⁹⁵

Moreover, although payment tokens provide users with the ability retain anonymity, they also allow the user to be completely transparent at their discretion. To be transparent, a user can simply reveal their public wallet address and the world is able to view their entire history of transactions. There are many websites today that enable anyone to view a token wallet address and see every transaction occurring from that address along with the recipient of each transaction (although the recipient can only be identified if they have also made their public wallet address known).⁹⁶ This could allow for transparency of public entities and officials, and particularly entities whose success is linked to the public’s financial trust, such as charities and political parties. Many private or public businesses can also use the visibility of DLT to provide real-time financial disclosure to stakeholders by providing them with the business’ public wallet address. As discussed above, it also provides one of the most secure and reliable records of transactions for law enforcement to track illegal activities.⁹⁷ This also allows law enforcement to taint payment tokens (much like marked cash bills) if a wallet address is associated with an illegal activity.⁹⁸ There are firms that provide distributed ledger analysis to assist law enforcement and cryptocurrency exchanges with tools to track tainted tokens.⁹⁹

(e) *Taxation*

Of course, the practical anonymity of tokens carries significant challenges for government taxation authorities, including the CRA and IRS. Many taxpayers have filed tax returns on the assumption that tax authorities will, as a practical matter, never learn of their token transactions. Two examples of this recently cited by the IRS were described in the 2017 article “Tax Implications of Cryptocurrency”:

[In the first] example, Taxpayer 1 originally worked with a foreign promoter who set up a controlled foreign shell company which diverted his income to a foreign brokerage account, then to a foreign bank account and lastly back to Taxpayer 1 through the use of an automated teller machine (ATM). Once Taxpayer 1 abandoned the use of his offshore structure in favor of using virtual currency, the steps described above were the same until his income reached his foreign bank account. Once there, instead of repatriating his income from an ATM in the form of cash, Taxpayer 1 diverted his income to a bank which works with a virtual currency exchanger to convert his income to virtual currency. Once converted to virtual currency, Taxpayer 1's income was placed into a virtual account until Taxpayer 1 used it to purchase goods and services. Taxpayer 1 failed to report this income to the IRS.

....

[In the second example, two separate] corporate entities with annual revenues of several million dollars . . . bought and sold bitcoins which resulted in the underreporting of income. Both taxpayers admitted disguising the amount they spent purchasing bitcoins as deductions for technology expenses on their tax returns. The bitcoin transactions were discovered after repeated requests for the original documentation necessary to substantiate the technology expense items claimed on the tax returns.¹⁰⁰

Tax authorities are beginning to respond to this challenge. In 2016, the IRS filed a “Jon Doe” summons against Coinbase, one of the leading online token exchanges in North America. A John Doe summons allows the IRS to require Coinbase to provide information, including user identity, notwithstanding that the IRS is unable to name the taxpayers it is seeking information regarding. A recent article summarizes the case:

Despite this pseudonymity, there have been efforts to identify cryptocurrency users through their accounts on third-party exchanges. The IRS has attempted to obtain the identities of all 1.5 million users of the largest U.S. Bitcoin exchange, Coinbase. After receiving critical inquiries from Congress and opposition from both Coinbase itself and a Coinbase user, the IRS limited its inquiry only to those "who have conducted 'at least the equivalent of \$20,000 in any one transaction type (buy, sell, send, or receive) in any one year during the 2013-2015 period,'" using the reporting thresholds of Internal Revenue Code (IRC) § 6050W, which requires all payment-processing companies such as PayPal to report certain information to the IRS regarding payments that were processed in a calendar year.¹⁰¹

Coinbase appears to have now responded to this request (after losing a court challenge in November 2017), and the IRS appears to still be analysing the data provided. It is unclear whether the CRA would be able to obtain an order under section 231.2 of the Act for Canadian token exchanges to disclose the identity of persons who have transacted on their platform,¹⁰² or to what degree such an order would assist the CRA given that many Canadians have carried out their activities on non-Canadian exchanges. However, the CRA can request information under Canada's tax treaty network from other taxation authorities, such as the IRS. On July 3, 2018, the CRA issued a News Release, “Tax enforcement authorities unite to combat international tax crime and money laundering”:

Leaders of tax enforcement authorities from Australia, Canada, the Netherlands, the United Kingdom and the United States have established a joint operational group, the Joint Chiefs of

Global Tax Enforcement (J5), to increase collaboration in the fight against international and transnational tax crime and money laundering.

The group will focus on building international enforcement capacity by sharing information and intelligence, enhancing operational capability by piloting new approaches, and conducting joint operations, to bring those who enable and facilitate offshore tax crime to account.

Membership of the J5 includes the heads of tax crime and senior officials from The Australian Criminal Intelligence Commission (ACIC) and Australian Taxation Office (ATO), the Canada Revenue Agency (CRA), the Dutch Fiscal Information and Investigation Service (FIOD), Her Majesty's Revenue & Customs (HMRC), and Internal Revenue Service Criminal Investigation (IRS-CI).

This group formed in response to a call to action from the Organisation for Economic Co-operation and Development (OECD) for countries to do more to tackle the enablers of tax crime. Successes, new approaches and findings from these joint efforts will be shared with the greater tax enforcement community.

At their first meeting last week, the J5 brought together leading experts in tax investigations and financial crime, cybercrime and big data analysts from each of the five member countries. Together they developed tactical plans and identified opportunities to pursue cyber criminals and enablers of transnational tax crime. The J5 will do this through the sharing of data and technology, conducting operational activity and taking advantage of collective capabilities. Each member country has committed to dedicating one full-time resource to the group, with the possibility of expanding to include additional part-time resources to support specific projects.¹⁰³

The same news release included a quote from Johanne Charbonneau, Director General of the CRA:

“The formation of the J5 demonstrates the serious commitment of governments around the globe in enhancing international cooperation in fighting serious international tax and financial crimes, money laundering, and cybercrime through the use of cryptocurrencies. The J5 complements the important international work of the OECD through operational collaboration. Our collective efforts and experience will be shared to jointly identify and address the increasingly sophisticated and global schemes and the professional enablers that facilitate such schemes.”¹⁰⁴

5.2 Ownership

A common question asked regarding tokens is what kind of property they should be characterized as for tax purposes. We will address this question in section 6 of this paper. However, a more fundamental question often goes unaddressed: when can a token be said to constitute “property” of a taxpayer to begin with, if at all?¹⁰⁵ If taxpayers can be subject to income or gains from tokens, they must be able to be said to own the token from which the income or gains is said to be derived.¹⁰⁶

Under both the common law and civil code, the concept of property does not refer to a thing itself, but to a description of the legal relationship that a person has in respect of a thing. So, the question of ownership of tokens is not whether tokens are a thing, but whether tokens are a thing that can be owned. More specifically, this question can be expressed as “what are the incidents of ownership of a token?” Once these incidents are settled upon, then it can be determined who, if anyone, has the incidents of ownership over a token such that it can then be called their property – at which point it will clearly be “property” within the meaning of the Act.

As discussed above, a token is a set of code. In that sense it is no different than a set of code that constitutes a computer program. However, it's not clear that the incidents of ownership of a computer program are relevant to tokens. Ownership of a computer program first arises at the point of its creation under the common law of copyright, which, stated overly simply, refers to ownership resting in its creator. This

ownership does not at first instance depend on how many copies of the code have been created, as each copy is identical. The creator-owner can then transfer their ownership of the code to others for consideration, or they can retain ownership of the code and license its use to others. In either case, the sale or license is effected and evidenced through a contract for consideration between the transferee and transferor. In the case of shrink-wrap software licenses, the program is replicated and distributed through various media, with the licensee being required to effect the contract by inputting a unique licensee code to gain access to its use.

These principles of software ownership seem to apply to tokens at the point of their creation in the case of an ICO. When a person creates a new blockchain and tokens on that blockchain, as for instance generally occurs in the case of a company conducting an ICO, the tokens would arguably arise in the same manner as a computer program and be owned by their creator under the common law principle of copyright. The principle of ownership rests on the positive claim to creation and the negative claim to not have transferred that ownership to anyone else.

However, the principles of software ownership do not seem to apply to tokens in any other scenario. Miners do not create a token: in consideration for the work performed, and upon verification of that work having been properly performed, the blockchain is programmed to automatically create a new token and deliver that new token to the wallet of the work provider. Similarly, people who purchase tokens from others, including from ICO creators or miners, do not create a token. Rather, in both cases, an exchange is effected whereby a token is transferred to a blockchain wallet in consideration for the delivery of a property or a service. However, unlike software, the transfer of ownership is rarely effected or evidenced through a contract for consideration between the transferee and transferor. Some tokens may be transferred under a peer-to-peer contract, in which case ownership could be argued to rest in and be evidenced by that contract. However, as discussed above, the majority of tokens are exchanged anonymously, in which case a key building block for a legally binding contract would seem to be missing: the ability to ascertain the identity of the parties.

The three requirements for a legally binding contract are offer, acceptance, and consideration. There is no inherent requirement that the parties be identified for a contract to be valid. However, there are many legal reasons why one party to a contract may need to ascertain the identity of the other party. An obvious example is where one party has determined to bring a lawsuit against the other for a breach of their contract. For our purposes here, the obvious need is the ability to verify title or ownership. However, there are many examples in the digital marketplace of contracts in which the parties are not fully identified to each other. Consider a sale made on eBay or one of many other online sales websites that permits a seller to remain anonymous: the purchaser may never know the identity of the seller, even though they enter into and complete a valid contract. However, the identity of the parties is always ascertainable, since the identity of both parties is known to the intermediary (in this example, eBay), which could produce identifying information about both parties should the same be legally required.

Theoretically, it is conceivable that a legal property framework could be constructed to enable anonymous transactions to create a validly binding contract sufficient to transfer ownership. In this regard, it is worth noting in this context that several US states, including Arizona, California, Florida, Nevada and Tennessee, have begun to enact legislation that will make signatures, records, and contracts secured through blockchain technology legally valid and binding.¹⁰⁷ However, in light of the robust anonymity of the blockchain, such a framework would be insufficient to enable people to determine who in fact owns a token at any given point in time – particularly for tax purposes.

Absent a settled legal structure on which ownership of tokens can be said to rest, for practical purposes a determination of the ownership of tokens must seemingly rest in the incidence of possession:

...[T]here are two ways to keep track of ownership of currency. Either ownership tracks possession of some token (such as the U.S. dollar), or ownership tracks access to some ledger. Digital currencies track ownership based on who has access to some ledger. Checks, credit cards, and Paypal track ownership in the same way.¹⁰⁸

Access to tokens on a blockchain ledger requires access to the wallet in which the tokens are held. The question then becomes: how can one possess a blockchain wallet? As a wallet is itself just another set of code on the blockchain, which is both nowhere and everywhere at once, and is not registered in any person or entity's name, ownership of a wallet would seem to be subject to the same challenges as the tokens in the wallet. Swiss scholars have argued that ownership of tokens rests in the possession of the private key associated with a wallet.

Blockchain technology, for example, with its individualizable information such as Bitcoin, can represent the ownership of an object. The principle of the *numerus clausus* of ownership rights must be weighed against the principle of functional equivalence. It must also be decided whether the term "*object*" can be applied to crypto currencies: It can be asserted that exclusive access to Bitcoins via the private key and the definability of Bitcoin via the Bitcoin protocol establish a functionally equivalent legal relationship to ownership. This establishes an exclusive right of disposal over an individualizable digital entry (e.g. Bitcoins). From a function perspective, this does not differ in any way from ownership of a "*object*" (except for the interpretation of the concept of the "*object*").¹⁰⁹

Although Swiss law is of Germanic origin and thus of no direct legal import in Canada, the principle resonates with and seems informative under the common law principles of possession. The Australian Taxation Office has offered the following analysis of ownership of tokens under Australian common law:

Is bitcoin 'any kind of property'?

In *Yanner v. Eaton (Yanner)* the High Court accepted that property refers not to a thing but to a description of a legal relationship with a thing; and, more specifically, to the degree of power that is recognised in law as permissibly exercised over the thing. Noting the difficulties in determining what is meant by 'property' in a thing, their honours quoted Professor Gray who stated '[a]n extensive frame of reference is created by the notion that 'property' consists primarily in control over access'.

There is no single test nor a single determinative factor for identifying a proprietary right. Courts have emphasised different characteristics in different circumstances. One formulation that has been applied in Australia is the 'Ainsworth test' - which asks whether a right is definable, identifiable and capable of assumption by third parties, and permanent or stable to some degree. However, courts have also focused on factors such as excludability (whether it is possible to exclude others from the right in question), commercial value (whether something is treated in commerce as a valuable proprietary right), and enforceability of the right against third parties generally. Accordingly, in determining whether something amounts to property it is necessary to weigh up a range of factors, and to treat none as definitive.

In the case of Bitcoin, the relevant relationship in the nature of property that must be considered is the relationship between:

- (a) the object or thing, bitcoin, being the digital representation of value constituted by three interconnected pieces of information (a Bitcoin address; the Bitcoin holding or balance in that address; and the public and private keypair associated with that address), and
- (b) the bundle of rights (hereafter referred to as 'Bitcoin holding rights') ascribed to a person with access to the bitcoin under the Bitcoin software and by the community of Bitcoin users.

The most important of these Bitcoin holding rights are the rights of control over one or more bitcoin in the holder's Bitcoin wallet, for example, the capacity to trade a bitcoin for other value or use it for payment. These rights, however, do not amount to a *chose in action* as a Bitcoin holding does not give rise to a legal action or claim against anyone.

However, there are other factors that support the conclusion that Bitcoin holding rights are proprietary in nature. The most compelling is that bitcoin are treated as valuable, transferable

items of property by a community of Bitcoin users and merchants. There is an active market for trade in bitcoin and substantial amounts of money can change hands between transferors and transferees of bitcoin. *Armstrong DLW GmbH v. Winnington Networks Ltd* and other English and Australian cases evidence a judicial willingness to regard property that is valuable in commerce as property for the purposes of law.

Bitcoin holding rights involve an inherent excludability because the Bitcoin software restricts control of a Bitcoin holding to the person in possession of the relevant private key. As the Bitcoin software prescribes how the transfer and trade of bitcoin can occur and transactions are verified through the Bitcoin mining process, Bitcoin holding rights are definable, identifiable by third parties, capable of assumption by third parties, and sufficiently stable as per the Ainsworth test.

...

Apart from a dealing in individual bitcoin it is possible for there to be a dealing relating to the Bitcoin wallet (which would necessarily be a dealing in each and every bitcoin in the wallet and the private key), or just in the private key. Rights may exist in relation to either. Bitcoin wallet rights are essentially the same as the Bitcoin holding rights but represent a more extensive interest, the whole (the wallet) including the lesser (individual bitcoin).¹¹⁰

This framework of ownership offers a path forward in Canada and will be adopted for purposes of this paper as the best evidence of ownership.

If possession of a wallet key is the primary evidence of ownership of the tokens inside it, taxpayers should record any contractual agreement that is intended to alter that. For example, if multiple people have access to the wallet key, for joint ownership purposes or to mitigate risk of loss of the key, an agreement should be recorded to reflect the agreed ownership interests as between those who know the key.

5.3 Valuation

As discussed below in section 6 of this paper, the taxation of tokens often requires a determination of a token's fair market value at a given point in time, usually in the context of establishing a taxpayer's basis or determining a taxpayer's proceeds or gains. The Supreme Court of Canada has defined "fair market value" as:

[T]he highest price available estimated in terms of money which a willing seller may obtain for the property in an open and unrestricted market from a willing knowledgeable purchaser acting at arm's length.¹¹¹

This will generally be a simple matter to determine if the tokens are disposed of in an arm's length exchange for (a) cash, or (b) property or services other than tokens where the property or services received are also offered to persons for cash. In these circumstances, the tokens would arguably be considered to have a fair market value equal to the value of the cash, or cash value of the property or services received in consideration. If the cash or cash value is expressed in a foreign currency, the determination would require a second calculation of the CDN conversion value.¹¹²

However, the matter becomes significantly more complicated when the tokens are exchanged for other tokens. In the case of popular currency tokens that are traded in high volume on popular exchanges, it may seem tempting to answer that the fair market value of tokens should be determined as the CDN trading price on the day on which the transaction occurred. For example, if a Canadian taxpayer disposed of 1 Bitcoin (BTC) for 3 Ethereum (ETH) on exchange A on day 1, the taxpayer could reasonably take the position that the value it received for its BTC was the CDN cash trading value of the ETH on exchange A day 1. The IRS's position on this, set out in 2014, seems at first glance to be reasonable:

If a virtual currency is listed on an exchange and the exchange rate is established by market supply and demand, the fair market value of the virtual currency is determined by converting the virtual currency into U.S. dollars (or into another real currency which in turn can be converted into U.S. dollars) at the exchange rate, in a reasonable manner that is consistently applied.¹¹³

However, the simplicity of this answer is deceiving and has been subject to legitimate criticism. The market for most tokens is only developing, and trading values are subject to significant manipulation, which suggests that a given trading price is not truly indicative of a token's value.¹¹⁴ Further, the liquidity of many tokens is so thin that a given posted trading bid/ask price rarely represents the price that one would actually obtain when selling even a small block of tokens.

Moreover, if these realities are ignored and a taxpayer is required to use the trading value of a token as indicative of its fair market value, what method should be used – the end of day value or a point in time? A token's trading value can fluctuate dramatically within a given day and can vary significantly at any point in time between different exchanges. These spreads are a result of many factors, including national currency controls which can drive up demand for tokens in some jurisdictions relative to others. Many token traders earn their profits by arbitraging the spread between these exchanges. While this spread problem exists to some degree in valuing stocks and bonds with multiple listings as well, the quantum of the spread is generally so small that it only becomes a practical issue on extremely high-volume non-retail trading. However, with tokens, this spread can be as significant as 30% and thus poses a challenge in determining fair market value in small volume retail trading. It is not clear how a token could be said to have a fair market value equal to what one received on one exchange when the same token had a very different value on another exchange.

These problems are further compounded by the fact that a desired exchange of tokens can require multiple intervening exchanges. For example, taxpayers who hold illiquid tokens and want to exchange them for a different illiquid token are often required to first exchange their illiquid tokens for a liquid currency token and then trade the newly acquired liquid currency token for the desired illiquid token. Further, the execution of a single "trade" on an exchange may in fact involve multiple executions with multiple parties for multiple prices. The amount of work involved in determining the fair market value of each of these sub-transactions at a point in time for each of these trades, multiplied by the number of trades that can occur each day for taxpayers who participate in the token economy, is, to put it simply, more work than it is worth. As a practical matter, the required work has acted as a barrier to taxpayers participating in this new technology and complying with their tax reporting obligations when they do.¹¹⁵ Moreover, those that do participate and seek to comply are faced with the seemingly impossible task of keeping sufficient records to support their filing position.¹¹⁶

There is no simple answer to this problem. Switzerland's Federal Tax Authority (SFTA) has devoted significant resources to developing and communicating tax policy to enable the growth of blockchain token technology and participation in its growing token economy. For the purposes of administering the Swiss wealth tax, the SFTA has stated that the value of popular currency tokens such as Bitcoin should be measured based on an average of up to 12 different exchanges, excluding the highest and lowest prices to account for fragmented trading and extreme spreads.¹¹⁷ However, this may be unreasonably arbitrary where a currency token trades on hundreds of exchanges, or where an illiquid token trades on only a handful of exchanges that are subject to extreme volatility and fragmented and thin trading patterns.

The problem of valuation is magnified even further in the case of utility tokens used to obtain services on their native platforms. For example, how should a token be valued where it is earned by a taxpayer through participation on a DLT based social media platform (i.e., earned for services performed), and disposed of to acquire additional services on that platform? If the token is not traded on an exchange, it would seem impossible to value social media participation. If the token is also traded on an exchange, the argument could be made that the value of the tokens on the platform should equal the trading value on the exchange. However, the trading value of a utility token on an exchange often has no indicative relationship to the value

of services that can be purchased with it, as utility tokens are often not indexed to any particular fiat currency or set of services. Where this is the case, a token's trading value may be subject to significant speculative appreciation that does not correspond to the value of the services it can be traded for on the token's platform. Moreover, even if a token is directly or indirectly indexed to a fiat currency or set of services, if the token is a thinly traded illiquid token that may be subject to extreme price daily or weekly fluctuations, it would be difficult to assert that the value of the services received on the platform rise and fall reflective of the value expressed on an exchange.

In the authors' view, tax policy in respect of the valuation of tokens must realistically reflect the practical economic realities involved when dealing with tokens and should not prevent the adoption of DLT technology by imposing prohibitive requirements or reporting obligations. Some US commentators have suggested that the IRS's statement that taxpayers should determine the value of their tokens "in a reasonable manner that is consistently applied" must be interpreted and applied in a manner that reasonably enables taxpayers to participate and adopt blockchain token technology – both in terms of determining value, and keeping sufficient records to support that value.¹¹⁸ In the absence of clear policy and guidance from the CRA on these matters, the authors' view is that Canadian taxpayers should likewise be able to determine the value of their tokens "in a reasonable manner that is consistently applied" and should be afforded broad flexibility when they attempt to do so in good faith.

It seems unlikely that there could be a single method by which value could be reasonably established that would apply to all taxpayers and all types of tokens. In the case of liquid currency tokens, it may be reasonable to use an average value across a variety of exchanges, or to use only the value determinable from a single exchange where the taxpayer regularly uses that exchange. In the case of illiquid utility tokens, it may be reasonable to consider the value of the services that can be or were obtained on disposition, or a sufficiently time-averaged trading value on a single or on multiple exchanges to reduce volatility to a meaningful value.

5.4 Location

The fourth practical challenge facing the taxation of income and gains from tokens is the difficulty in determining the location in which tokens can be said to be situated, and thus the jurisdiction in which any income and gains arising from the tokens should be subject to tax.

A distributed ledger does not exist in any one location, but on the memory and processors of its users. Tokens are simply a ledger entry on the DLT, nothing more, and as such exist on replicated records on nodes around the world. It would be incorrect to say that a token exists in a user's wallet. Moreover, token wallets do not in fact "hold" tokens – they are simply a set of private keys that enable the holder of those keys to access and transact with their tokens on the DLT. A user may hold their private key wallet as a USB key in a particular place, but that is not the place where the tokens can be said to be – the tokens exist everywhere as much as they exist nowhere. Further, most token holders use online wallets which are hosted on servers located around the world.

One possible solution would be to say that income and gains from tokens should be taxed in the jurisdiction in which a user holds their private key wallet. However, this has numerous problems. First, users could simply memorize their private keys such that the private key wallet would not exist anywhere but in the user's mind. Second, it would also mean that taxpayers would be subject to tax in every jurisdiction in which they use their private key wallet if they do so when travelling around the world. Third, it would introduce significant problems where users store multiple copies of their private keys in different locations to ensure they are not lost or destroyed. Fourth, it could enable taxpayers to avoid tax by simply placing their wallet keys in a security deposit box in a tax haven. Finally, it is not clear how a wallet key, in and of itself, provides any meaningful connection to a taxing jurisdiction.

The authors' view is that this problem is in fact not a difficult one to solve in jurisdictions adopting residence-based taxation, including Canada. It seems reasonable that income and gains from tokens be taxed in the jurisdiction in which the owner (the person having possession and control of the wallet key) resides for tax purposes. Storage of a key elsewhere, or access to the DLT and use of tokens in other jurisdictions, would reasonably not change this result unless the activity is sufficient to constitute conducting business through a permanent establishment elsewhere.

6. Taxation: Token Property Classification for Tax Purposes

Once it is determined that a taxpayer owns a token as property for tax purposes (see section 5.2 of this paper), the next step in most tax analyses will be to consider what type of property the token represents for tax purposes. Aside from non-legal tender payment tokens (“**NLT Payment Tokens**”), most tokens do not generally represent new types of property interests, but a new technology or medium through which familiar types of property and interests are held and exchanged. This is generally referred to as a “tokenized” interest. Once the type of property represented by the token is identified, the tax consequences are generally no different than would arise when dealing with that type of property if it were not tokenized (subject to considerations discussed in section 7 of this paper).

The authors are not aware of any token categorization scheme that has yet been published for Canadian purposes, whether regulatory or tax driven. However, two robust categorization frameworks have been created in other jurisdictions that the authors have found useful in developing a proposed Canadian framework. The first framework was developed by the law firm MME Legal in Zurich, Switzerland and published in their May 2018 paper “Conceptual Framework for Legal and Risk Assessment of Crypto Tokens”.¹¹⁹ MME’s goal in developing this framework was to “facilitate the multijurisdictional understanding of existing and new applications in the tokenized ecosystem, as well as identify coins which may not have the essential characteristics of digital property...to increase awareness and serve as a basis for establishing governance and diligence standards for all aspects of creating, offering, transferring and holding tokens.”¹²⁰ The MME system is driven by three primary distinctions that underlie the economic risks involved in token ownership:

1. *Native Utility Tokens*: Tokens with no legal counterparty that function on a native platform, which do not give rise to any right other than their native functionality (though a contractual right may arise against the issuer if the platform is not developed or does not operate as promised). Payment tokens are generally considered utility tokens here, in the sense that they provide holders with the utility of a medium of exchange, and store of value.
2. *Counterparty Tokens*: Tokens that have a natural or legal person as a counterparty giving the owner a legal contractual claim or “right *in personam*”, and
3. *Ownership Tokens*: Tokens that function as title to an asset giving the owner a legal “right *in rem*”.

The second categorization framework is the Malta regulatory framework enacted into law by Malta in July 2018. The Malta scheme follows more traditional categories associated with the regulation of securities and financial instruments.

Based on these categorizations, this paper proposes 17 categories of tokens that reflect the different types of tokens that are either currently in circulation or are anticipated to enter circulation soon. Each category of token, other than NLT Payment Tokens represents a familiar type of property, and for which the Act has an existing framework of rules under which those types of property are taxed. The proposed categories are set out in Table 1, below, which serves as a map for the rest of this paper.

The following sections of this paper will address in more detail (1) how NLT Payment Tokens, which do not represent a familiar type of property, should be characterized as property under the Act, and (2) how each of the remaining types of tokens represent familiar types of property under the Act.

Note that the descriptions of the Maltese legal requirements in Table 1 are provided only as an aid in understanding the fundamental differences between the proposed types of tokens, and are not suggested to be a full description.

Table 1: Token Property Framework (Detailed)

| Common Divisions | MME & Malta Divisions | MME Description ¹²¹ | Malta Regulatory Requirements ¹²² | Examples | |
|------------------|-----------------------|---|---|--|--|
| Utility Tokens | Native Utility Tokens | 1. Platform Access | Provide access to enhanced functionality platform without any specific application | Tokens (1) have no utility, value or application outside of the DLT platform on which they were issued, (2) have a utility or value restricted solely to the acquisition of goods or services, and (3) are only exchangeable on the DLT platform on which they were issued (or a limited network of other DLT platforms).* *Note that to date many utility tokens in this category are tradeable on exchanges. It is not clear how such tokens are intended to be classified the Malta framework. | Ether, Ether Classic, Cardano, Lisk, ICON, EOS |
| | | 2. Application Access | Provide access to native application (on native or shared third-party platform) | | ERC-20 Tokens |
| | | 3. Application Settlement | Provide P2P settlement for transactions with third parties on a native application platform | | Ripple, Siacoin, Mysterium, Filecoin |
| Payment Tokens | | 4. Payment: Non-Legal Tender (NLT) | Provide medium of exchange, unit of account and store of value providing access to an underlying technology | (not addressed) | Bitcoin, Bitcoin Cash, Litecoin, Monero, Zcash |
| | | 5. Payment: Electronic Money | | Token (1) is issued by the issuer on receipt of funds at par value, and redeemable at par value with the issuer upon request of the holder, (2) provides holder with a claim against the issuer arising from the funds originally placed against the issuance of the token, and (3) is used for the purpose of a payment transaction and is accepted by a natural or legal person other than the issuer of the token as a payment. | Tether, Gemini Dollar, Paxos Standard |
| Asset Tokens | Counter-party Tokens | 6. Money Market Instrument | Tokenization of a claim against a legal counterparty | Tokens (1) provide holder with right to participate in capital of company through obligation of issuer, (2) have a maturity date less than 397 days from the date of issuance, (3) have an easily determinable value, (4) are tradeable in capital markets, and (5) are not a derivative | Compound wrapped tokens |
| | | 7. Debt | | Tokens (1) provide holder with rights akin to debentures, (2) have a maturity date greater than 397 days from the date of issuance, (3) are tradeable by holders, including on exchanges, subject to limitations ordinarily applicable to debt, and (4) are not intended to be used as a means of payment for services | - |
| | | 8. Equity | Tokenization of corporate equity interest equivalent or related to shareholder rights | Tokens (1) provide holder with rights equivalent to shares, (2) are tradeable by holders, including on exchanges, subject to limitations ordinarily applicable to shares, and (3) are not intended to be used as a means of payment for services | ERC-884 tokens, Daura C-Shares, Documo, Lykke, Robinhood |
| | | 9. Collective Investment / Fund | Tokenization of an enterprise | Issued to investors in collective or pooled investment scheme | Blockchain Capital, 22xFund, BB Fund |
| Asset Tokens | | 10. Derivative: Financial / Future Participation | | Token (1) contains or has an underlying contract equivalent to options, future forwards rate agreements, swaps, hedges or other derivatives, and (2) provides holder with economic exposure to underlying securities, currencies, interest rates, emission allowances, other financial derivative instruments, indices or measures | Modum |
| | | 11. Derivative: Commodity | Tokenization of a claim, value of which is derived from underlying off-blockchain base values | Token (1) contains or has an underlying contract akin to options, future forwards rate agreements, swaps, hedges or other derivatives, and (2) provides holder with economic exposure to underlying commodity | - |
| | | 12. Derivative: Credit & Swaps | | Token is designed and/or used for the sole purpose of and/or results in the transferring of credit risk from one party to another | - |

| Common Divisions | MME & Malta Divisions | MME Description ¹²¹ | Malta Regulatory Requirements ¹²² | Examples |
|------------------|---|--|--|----------|
| | 13. Derivative: Contracts for Difference | | Token gives the holder an economic exposure, which can be long or short, to (i) the difference between the price of an underlying asset at the start of the contract and the price when the contract is closed or (ii) the difference in the price of two different underlying assets. | - |
| | 14. Derivative: Non- Financial | | Token (1) contains or has an underlying contract equivalent to options, future forwards rate agreements, swaps, hedges or other derivatives, and (2) provides holder with economic exposure to underlying (a) climatic variables, (b) freight rates or inflation rates, (c) other official economic statistics, (d) telecommunications bandwidth, (e) commodity storage capacity, (f) transmission or transportation capacity relating to commodities, whether cable, pipeline or other means, (g) an allowance, credit, permit, right or similar asset which is directly linked to the supply, distribution or consumption of energy derived from renewable resources, (h) a geological, environmental or other physical variable, (i) any other asset or right of a fungible nature, other than a right to receive a service, that is capable of being transferred, (j) an index or measure related to the price or value of, or volume of transactions in any asset, right, service or obligation, or (k) an index or measure based on actuarial statistics | - |
| | 15. Derivative: Currency | | Token equivalent to a currency derivative provided it is not a "spot contract" or "means of payment" within the meaning of those terms | - |
| | 16. Membership | Tokenization of a personal membership | <i>(not addressed)</i> | - |
| | 17. Ownership / Security | Evidences ownership of an underlying asset | <i>(not addressed)</i> | - |

6.1 NLT Payment Tokens

Tax authorities have remained relatively silent on what kind of property tokens are for tax purposes. The last statements by both the CRA and the IRS on this question came in 2014, when the question put to tax authorities was whether Bitcoin and similar payment tokens were currencies for tax purposes. In answering this question, the CRA stated:

Virtual currencies, such as Bitcoins, are not considered to be a currency issued by a government of a country, such as American dollars. As such, they are generally treated as a commodity for purposes of the Income Tax Act. Therefore, using Bitcoins to purchase goods or services would be treated as a form of barter transaction.¹²³

In providing this answer, the CRA failed to provide any analysis regarding what characteristics a token would need to have to be a “virtual currency”, giving only the example of Bitcoin.

Four months later, the IRS also answered the question of whether “virtual currencies” were currencies for tax purposes. The IRS agreed that “virtual currencies” were not currencies, but went further to provide a description of what characteristics a token would need to have to be considered a “virtual currency”:

Virtual currency that has an equivalent value in real currency, or that acts as a substitute for real currency, is referred to as “convertible” virtual currency. Bitcoin is one example of a convertible virtual currency....Virtual currency is a digital representation of value that functions as a medium of exchange, a unit of account, and/or a store of value. ... Virtual currency that has an equivalent value in real currency, or that acts as a substitute for real currency, is referred to as “convertible” virtual currency.... For federal tax purposes, virtual currency is treated as property. General tax principles applicable to property transactions apply to transactions using virtual currency....Under currently applicable law, virtual currency is not treated as currency that could generate foreign currency gain or loss for U.S. federal tax purposes.¹²⁴

Given that the IRS includes Bitcoin as an example of a “virtual currency”, the IRS comments that virtual currency is “convertible” into real currency is presumably to be understood to mean that there is a liquid market for the virtual currency – not that it is redeemable into cash.

Two preliminary conclusions can reasonably be drawn from this. First, using the categorizations set out in Table 1, the “virtual currencies” or “cryptocurrencies” being considered by the CRA and IRS appear to have been limited to NLT Payment Tokens. Ethereum, the first widely adopted Platform Access utility token was only created on July 30, 2015, well after these statements by the CRA and IRS were made. The authors would argue that the term “cryptocurrency” itself should generally be used only to refer to NLT Payment Tokens, as these are the only form of tokens intended to be used as currency instead of fiat currency.

Second, there is no consensus as to what type of property NLT Payment Tokens are. The CRA stated that they should be treated “as a commodity” for tax purposes, while the IRS stated only that they should be treated as property. The IRS position was recently confirmed in March 2018: “General tax principles that apply to property transactions apply to transactions using virtual currency.”¹²⁵

A number of definitions have been proposed to determine what characteristics are necessary for a token to constitute an NLT Payment Token. Drawing on the definition adopted by Australia for its GST legislation,¹²⁶ the authors suggest that the following definition provides a useful set of criteria to determine whether a token constitutes an NLT Payment Token:

NLT Payment Tokens means DLT tokens that:

- (a) are designed to be functionally-fungible; and

- (b) are intended to be, and are, broadly accepted by merchants as consideration for a supply of goods and services other than other DLT tokens; and
- (c) are generally available to members of the public without any substantial restrictions on their use as consideration; and
- (d) are not denominated in any country's currency; and
- (e) do not have a value that depends on, or is derived from, the value of anything else; and
- (f) do not give an entitlement to receive, or to direct the supply of, a particular thing or things, unless the entitlement is incidental to:
 - (i) holding the digital units of value; or
 - (ii) using the digital units of value as consideration;

but does not include:

- (g) tokens issued by governments as legal tender; or
- (h) Electronic Money Tokens

(a) Currency?

The argument for why NLT Payment Tokens should not be treated as currency for tax purposes is simply this: they are not currency.¹²⁷ To be currency, a medium of exchange must be legal tender.¹²⁸ In Canada, legal tender is established under the *Currency Act* which has a physical representation in the form of coins or notes, and which has yet to include any NLT Payment Token. This holds true in most nations around the world. As summarized by the Swiss Federal Council in 2014:

A virtual currency is a digital representation of a value which can be traded on the Internet and although it takes on the role of money – it can be used as a means of payment for real goods and services – it is not accepted as legal tender anywhere. These currencies have their own denominations. They differ from e-money in that they are not based on a currency with legal tender status. Virtual currencies exist only as a digital code and therefore do not have a physical counterpart for example in the form of coins or notes. Given their tradability, virtual currencies should be classified as an asset.¹²⁹

Since 2014, only a handful of nations have established a national form of Payment Token as legal tender: Marshall Islands, Senegal, Tunisia, Venezuela.¹³⁰ To put it kindly, the fiscal and monetary policies of these jurisdictions is less than exemplary. However, they may in fact be early adopters. In August 2013, the German Finance Ministry characterized Bitcoin as a unit of account, or a form of "private money" that can be used in "multilateral accounting circles", though not legal tender.¹³¹ In April 2018, Japan passed legislation recognizing that cryptocurrencies have "asset-like values" that can be used as payment to third parties.¹³² There is some debate whether Japan's legislation has the legal effect of making Payment Tokens legal tender or currency,¹³³ but this is the closest that Payment Tokens have come to being characterized as "currency" in an OECD nation. Many other jurisdictions are considering whether to advocate for the establishment of a form of Payment Token as legal tender. The Bank of Canada released a discussion paper in September 2017 on the issue from the Canadian perspective.¹³⁴ The US states of Arizona and Utah have both passed legislation to allow taxpayers to pay taxes with Bitcoin and certain other NLT Payment Tokens.¹³⁵

Regardless of what may happen in the future, Payment Tokens are currently not legal tender in almost all jurisdictions in the world.

The arguments for why NLT Payment Tokens should be treated as currency for tax purposes, notwithstanding that they are not legal tender, are threefold. The first argument is that NLT Payment Tokens should be treated like currency because they perform all the same functions as currency. As with currency,

“[v]irtual currencies are a digital representation of a value that is electronically traded and functions as a medium of exchange, a unit of account, or a store of value.”¹³⁶

This fact is implicitly recognized in Canada’s amendment of the MLTFA to include “dealing in virtual currencies” as a “money services business” (as noted above, the phrase “virtual currencies” has not yet been defined for purposes of the MLTFA).¹³⁷ While the issue has not been considered by Canadian courts, two US court cases have considered whether Bitcoin is “money” under 18 U.S.C. §1960, which requires money transmitting businesses to be licensed. On September 19, 2016, the Southern District of New York court held that Bitcoin was money:

In light of this consensus as to the term’s ordinary meaning, the Court concludes that “funds,” for the purposes of § 1960, means pecuniary resources, which are generally accepted as a medium of exchange or a means of payment.

Applying that definition here, it is clear that bitcoins are funds within the plain meaning of that term. Bitcoins can be accepted “as a payment for goods and services” or bought “directly from an exchange with [a] bank account.”...They therefore function as “pecuniary resources” and are “used as a medium of exchange” and “a means of payment.”¹³⁸

Three months later, the Western District of New York court came to the opposite conclusion:

Bitcoin is not “money” as people ordinarily understand that term. Bitcoin operates as a medium of exchange like cash but does not issue from or enjoy the protection of any sovereign; in fact, the whole point of Bitcoin is to escape any entanglement with sovereign governments. Bitcoins themselves are simply computer files generated through a ledger system that operates on block chain technology.... Like marbles, Beanie Babies™, or Pokémon™ trading cards, bitcoins have value exclusively to the extent that people at any given time choose privately to assign them value. No governmental mechanisms assist with valuation or price stabilization, which likely explains why Bitcoin value fluctuates much more than that of the typical government-backed fiat currency.... Because Bitcoin does not fit an ordinary understanding of the term “money,” Petix cannot have violated Section 1960 in its current form.¹³⁹

The second argument for treating NLT Payment Tokens as currency is that, to do otherwise will prevent users from adopting Bitcoin and other NLT Payment Tokens as forms of payment.

The decision to classify Bitcoin as property for tax purposes will lead to difficulties with reporting taxes for many of the users. The IRS decision has received criticism from various supporters of virtual currencies, implying that it will become more difficult for virtual currencies to function as currencies used to purchase everyday items. Average consumers will likely feel the biggest negative impact of the tax reporting challenges.¹⁴⁰

In May 2014, a US House Representative introduced a bill to treat Payment Tokens as currency to encourage adoption of token technology, but the bill died:

On May 7, 2014, Representative Steve Stockman introduced the Virtual Currency Tax Reform Act, which proposed changing the tax status of virtual currencies from property to foreign currency. Stockman, a known supporter of Bitcoin and other virtual currencies, claimed the need for the proposed legislation in a press release stating that “cryptocurrency is the future. We need to encourage it, not discourage it.” Representative Stockman based the Act on congressional findings that “classifying virtual currencies as property subjects users to capital gains tax on any transaction using the virtual currency based on any gain or loss relative to the change in the virtual currency’s value from the time of purchase.” Representative Stockman recognized the difficulties placed on the “everyday” users who are now responsible for performing a difficult tax calculation every time a Bitcoin transaction takes place. With the sheer volume of transactions occurring daily, the current method of taxation is extremely impractical, if not impossible. The effect of the Act’s reclassification would allow users of virtual currency to forgo the hassle of

calculating capital gains or losses on a yearly IRS Form 1040 and instead report income taxes normally and pay a sales tax whenever the currency is exchanged. Representative Stockman claims this is “a more proper way of taxing such transactions.” However, the Act failed to pick up any traction and never passed Congress.¹⁴¹

The third argument is that NLT Payment Tokens are functionally no different than book money or e-money used by banks and financial institutions, which are treated as currency. However, book money and e-money are based on the same unit of account as legal tender. As stated by the Swiss Federal Council:

In addition to legal tender, other payment instruments are widely used, of which the largest volume by far is accounted for by book money in the form of credit balances with commercial banks. Book money also reliably fulfils the functions of money; it is based on the same unit of account as legal tender and is regulated by minimum reserve requirements. The electronic transfer of book money, including by means of debit and credit cards, is widely used for payment transactions.

In addition to central bank money and book money, electronic money (or e-money) is another form of money. This is an electronic store of monetary value in the currency registered as legal tender which can be used for the payment of smaller amounts. E-money can be saved either on a chip card, for instance on a prepaid card, or on a PC using software-based systems.¹⁴²

Accordingly, while the arguments as to why NLT Payment Tokens should be treated as currency for tax purposes are not without merit, they are unlikely to ever be adopted by tax authorities unless and until a Payment Token becomes legal tender. As succinctly stated by Vern Krishna in March 2018, “For tax purposes, virtual currencies are considered ‘property’, rather than a currency.”¹⁴³ This seems more certain than ever, as Canada and the rest of the G20 finance ministers (including Germany and Japan) are reported to have agreed in June 2018 that NLT Payment Tokens will be treated as an asset and not a currency.¹⁴⁴

(b) Commodity?

If NLT Payment Tokens are a type of property other than currency, what type of property are they? The consensus appears to be that they are an intangible property. As Olivier Fournier and John J. Lennard stated in their 2015 CTF paper: “[f]rom a Canadian income and sales tax perspective, cryptocurrencies are currently, at the very least, intangible property.”¹⁴⁵ The question that has arisen is whether, as an intangible property, NLT Payment Tokens should be considered to be a “commodity” for tax purposes.

(i) Canadian Considerations

Common Law

The ordinary mercantile meaning under the common law seems equally unhelpful. Barron’s Canadian Law Dictionary defines “commodity” under the Canadian common law as:

“Something produced for use or sale, all things, which have prices and are offered for sale, everything moveable which is bought and sold, anything moveable that is the subject of trade and commerce” Underwriters' Survey Bureau Ltd. v. Massie & Renwick Ltd., [1937] Ex.C.R. 15 at 21; varied without reference to this point, [1937] S.C.R. 265.¹⁴⁶

This definition suggests that anything that is ever offered for sale is a commodity. Given that the Act refers to commodities within lists of a variety of other types of properties that are also offered for sale, it seems reasonable to conclude that “commodity” for purposes of the Act is significantly narrower than “anything for sale”.

CRA Statements

The CRA has taken the position that Bitcoin (and presumably other NLT Payment Tokens) “are generally treated as a commodity for purposes of the Income Tax Act”.¹⁴⁷ This falls short of stating that Bitcoin *is* a commodity for tax purposes, which has resulted in some ambiguity for Canadian taxpayers. Further, the CRA has provided no guidance as to how it reached this conclusion.

Surprisingly, neither the Act nor Canadian case law provides a comprehensive or concise definition of the term “commodity” for purposes of the Act.

When the statement was made in 2013, there was considerable discussion in the blockchain community at the time that Bitcoin was a digital equivalent to gold, giving rise to the nomenclature of Bitcoin algorithm processing as being analogous to “mining” and those who undertook the activity as “miners”. This line of thinking proved influential in some academic consideration of the legal nature of Bitcoin as a commodity:

Providing more viability to the Bitcoin commodities argument is the analogy to gold, which is a recognized commodity. The analogy provides that the value of a Bitcoin is tied directly to people’s desire for it, much like the value of gold. Additionally, the supply of both Bitcoins and gold is limited and both must be mined, although Bitcoin mining is a mathematical computer process.¹⁴⁸

However, while the argument of “digital equivalency to gold” may be persuasive in directing common nomenclature, it is less compelling as a legal argument.

The CRA has made very few substantive statements on what it views the term “commodity” to mean. In a 2005 ruling, the CRA confirmed that electricity was a commodity for purposes of the Act on the basis that, “In general, a commodity can include anything that is bought and sold.”¹⁴⁹ However, to interpret the term commodity in the Act this broadly would render almost everything a commodity, and most other terms in the Act referring to categories of items bought and sold as meaningless. Instead, there are substantive reasons why electricity should be considered a tangible good (e.g., as a flow of tangible electrons through tangible conductors, a measured unit of which is equivalent to any other such flow) which would provide a better basis for categorizing electricity as a commodity for tax purposes.

A second statement made by the CRA is found in its T5008 Guide (T4091) and Handbook on Securities Transaction (RC4268), each of which state that “commodities” should be understood to mean “Staples such as wool, cotton, or any articles of merchandise that are useful or serviceable.” It would stretch the limits of the English language to construe the phrase “articles of merchandise” as encompassing Payment Tokens.

A third statement by the CRA was made in two rulings, in 1995 and 2000, stating that the reference to “commodity price” in the former section 212(1)(b) of the Act “should not be considered to include foreign currency fluctuations, but rather in general is to be limited to (for example) prices for tangible commodities manufactured, extracted or grown.”¹⁵⁰ The CRA’s use of the phrase “tangible commodities” is instructive; it recognizes that the term “commodities” can ordinarily mean “anything for sale” as provided for in the above Barron’s definition, but for purposes of the Act is intended to mean only tangible commodities.

This understanding that “commodities” in the Act is limited to tangible property has also been the traditional understanding of Canadian tax practitioners:

The ordinary meaning of commodity includes any tangible personal property, which would obviously include manufactured goods. It may be, however, that for tax purposes a narrower definition that is limited to agricultural products (including forest and fish products), minerals, and currency is more appropriate. The history and context of the FAPI rules justify the narrower meaning.¹⁵¹

The foregoing would seem to confirm that the better interpretation of “commodity” under the Act is the CRA’s own definition applied since 1995: “tangible commodities manufactured, extracted or grown.”

Legislative Definitions

It seems natural then that the meaning of “commodity” for purposes of the Act would draw from the meaning given to that term under Canadian legislation that regulates trading of “commodities”. For regulatory purposes, the term “commodity” is the subject of provincial jurisdiction.

The Ontario *Commodity Futures Act* defines “commodity” as “whether in the original or a processed state, any agricultural product, forest product, product of the sea, mineral, metal, hydrocarbon fuel, currency or precious stone or other gem, and any goods, article, service, right or interest, or class thereof, designated as a commodity under the regulations.”¹⁵² An NLT Payment Token is not an agricultural product, forest product, product of the sea, mineral, metal, hydrocarbon fuel, or currency, nor have they been designated as a commodity under the regulations of that Act. So, an NLT Payment Token would not seem to be a commodity under this definition.

Both the Alberta and British Columbia *Securities Acts* define “commodity” as including “any good, article, service, right or interest of which any unit is, from its nature or by mercantile custom, treated as the equivalent of any other unit.”¹⁵³ NLT Payment Tokens, by their “nature” are clearly not “treated as the equivalent of any other unit” given that the unique identifiable nature of each token is traceable on the DLT platforms on which they exist. This is fundamentally different from commodities which are generally truly fungible in nature, not just in mercantile custom. And, while it is true that under mercantile custom (notwithstanding the unique identity of each token), NLT Payment Tokens are generally treated “as the equivalent of any other” NLT Payment Token, this requirement only applies if the token is at first instance a “good, article, service, right or interest.” The question then seems to turn on whether a token is a “good”, “article”, “service”, “right” or “interest”. NLT Payment tokens are clearly not a “service”, so this leaves the remaining four terms.

Goods

Legislative definitions of “goods” generally refer only to tangible property, or rights or interest in tangible property, and as such would appear to exclude tokens. The Alberta and BC *Sales of Goods Acts* each defines “goods” as including (a) “all chattels personal, other than things in action and money”, and (b) agricultural growing crops and things attached to or forming part of the land that are agreed to be severed before sale or under the contract of sale. The concept of chattels personal is limited to moveable property, which does not include intangible property. No reference to intangibles is provided for. The BC *Personal Property Act* defines “goods” as “tangible personal property, fixtures, crops and the unborn young of animals, but does not include chattel paper, a document of title, an instrument, investment property, money, trees other than crops until the trees are severed, or minerals or hydrocarbons until they are extracted.”

Articles

The only legislative definition of “articles” in Canada is found in the Canadian *Competition Act*, which defines “articles” as “Real and personal property of every description including:

- (a) money,
- (b) deeds and instruments relating to or evidencing the title or right to property or an interest, immediate, contingent or otherwise, in a corporation or in any assets of a corporation,
- (c) deeds and instruments giving a right to recover or receive property,

- (d) tickets or like evidence of right to be in attendance at a particular place at a particular time or times or of a right to transportation, and
- (e) energy, however generated;”

Based on this definition, only tokens that evidence a right to underlying property would seem to be an “article”. NLT Payment Tokens do not generally provide such a right, and as such would likely not be an “article”.

Rights or Interests

It is difficult to suggest that NLT Payment Tokens constitute a right or interest, as they are not a right or interest in anything. There is no counterparty against which an NLT Payment Token grants any rights. They do not even grant the holder the right of possession. Similarly, an NLT Payment Token cannot really be said to be an “interest” in anything, as it grants no interests in anything to anyone – not even the right of possession to its holder. It cannot be said that an NLT Payment Token grants an interest in the DLT ledger entry signifying the token – because that entry is the token itself. An interest is not the thing itself, but an interest *in something*. For example, “interests” that constitute a commodity have to date been limited to an interest in something other than the instrument being held – such as an interest in a future value of gold against a counterparty.

The securities commissions of Alberta, British Columbia and Ontario have not publicly stated that Payment Tokens might be considered to be a “commodity”. Rather, they have simply confirmed that Payment Tokens will not generally be considered to be a security. Their silence on the question of whether Payment Tokens might be considered to be a “commodity” suggests that absent regulations expressly designating NLT Payment Tokens as a commodity, NLT Payment Tokens would not generally be viewed as a “commodity” under Alberta, British Columbia or Ontario legislation.

As such, absent further guidance from Canadian courts or amendments to the Act, it seems reasonable to take the position that the term “commodity” in the Act should be interpreted as “tangible commodities manufactured, extracted or grown” as earlier stated by the CRA, which would exclude NLT Payment Tokens and all other tokens that do not provide their holder with a right or interest in “tangible commodities manufactured, extracted or grown.”

(ii) US Considerations

The primary legal arguments supporting the proposition that NLT Payment Tokens are commodities have been developed in the US: namely, the decision of the US Commodity Futures Trading Commission (CFTC) to regulate Bitcoin as a commodity, and US jurisprudence affirming this characterization for regulatory CFTC purposes. The US CFTC ruled as early as 2015 that, under the US *Commodity Exchange Act* (“CEA”), “The definition of a “commodity” is broad. Bitcoin and other virtual currencies are encompassed in the definition and properly defined as commodities.”¹⁵⁴

The CFTC’s determination was confirmed in the 2018 decision of the United States District Court for the Eastern District of New York, *CFTC v. McDonnell* (“*McDonnell*”).¹⁵⁵ The court in *McDonnell* looked to three definitions of “commodity” in reaching its conclusion: the definition in Black’s Law Dictionary, defining a commodity as “an article of trade or commerce”;¹⁵⁶ the Merriam Webster definition, “[a]n economic good . . . [or] an article of commerce . . .”;¹⁵⁷ and the US *CEA* definition:

wheat, cotton, rice, corn, oats, barley, rye, flaxseed, grain sorghums, mill feeds, butter, eggs, Solanum tuberosum (Irish potatoes), wool, wool tops, fats and oils (including lard, tallow, cottonseed oil, peanut oil, soybean oil, and all other fats and oils), cottonseed meal, cottonseed, peanuts, soybeans, soybean meal, livestock, livestock products, and frozen

concentrated orange juice, and all other goods and articles, except onions (as provided by section 13–1 of this title) and motion picture box office receipts (or any index, measure, value, or data related to such receipts), and all services, rights, and interests (except motion picture box office receipts, or any index, measure, value or data related to such receipts) in which contracts for future delivery are presently or in the future dealt in.¹⁵⁸

The decision appears to be largely based on the court’s determination that:

- Categorizing Bitcoin as a commodity “realistically reflects the economic behavior of Bitcoin users and squares with traditional economic conceptions of exchange”;
- Bitcoin functions as a store of value like commodities;
- Bitcoin functions as a type of monetary exchange *like* currencies, which are commodities; and
- The *CEA* covers intangible commodities.

With respect, the court’s determination that the *CEA* covers intangible seems to ignore the fact that these intangibles are limited to intangibles for future delivery of “services, rights and interests”, and provides no analysis as to how Bitcoin is a “service, right or interest.” In the authors’ respectful view, this is an essential ingredient to a determination that Bitcoin falls under the existing definition of “commodity”:

Bitcoin is an intangible, digital construct that does not exist in the physical world. Therefore, in order for a bitcoin to be subject to CFTC jurisdiction under the *CEA*, it must fall under the categories of right or interest “in which contracts[s] for future delivery are presently or in the future dealt in.”¹⁵⁹

While not considered by the court in *McDonnell*, Mitchell Prentis has provided a framework that is consistent with the rationales set out in *McDonnell*, and provides a more analytical rationale as to how Bitcoin achieves the status of an “interest” that is a commodity:

Bitcoin should primarily be considered a commodity because it serves the function of money in its community of users. Users exchange bitcoins to obtain property that they desire. In his seminal work, *Man, Economy, and State*, Murray Rothbard argues that all monetary exchanges are actually indirect commodity exchanges. Rothbard supports his proposition by tracing the development of money and exchange. Before the widespread adoption of a common form of money, people had to engage in bartering, or “direct exchange,” in order to complete transactions. In the barter system, if a wheat farmer needed to hire a teacher for his children, he had to find a teacher that was willing to teach his children in exchange for some amount of his wheat. This system was time-consuming and inefficient, and it limited people’s choice of transacting partners to only those that desired the kind of property they had to trade.

Money is created when a community of people agrees upon a common commodity that can be converted and exchanged between them. The hallmarks of early forms of the money commodity were that it could be easily transported, divided, and valued in different places. For this reason, precious metal commodities gained the status of money in many societies. For instance, gold is relatively easy to transport, can be broken down into smaller pieces, and is desirable for use as ornamentation in many different places. The more people that desire to possess a commodity, the better form of money it makes. When a commodity comes into “general use as a medium of exchange,” it is defined as money. And, when a government adopts that form of money as the preferred medium for the country, it becomes currency.

....

Bitcoin seeks to operate in the same way. However, instead of acting as a claim on some money commodity, Bitcoin purports to be the money commodity itself. By holding itself out as an accepted medium of exchange within a community, Bitcoin acts as the money commodity.

Bitcoin, further, meets the characteristics that Rothbard identified as being desirable in a money commodity.

....

Not only does Bitcoin effectively serve the purpose of a money commodity from a traditional economic viewpoint, Bitcoin also fits within the legal conception of a commodity [as defined under the CEA]....The primary question in determining whether a good or article is a commodity under the CEA is whether the item is one “in which contracts for future delivery are presently or in the future dealt with.”...In order to be traded on a futures exchange, a commodity must: 1) be homogenous; 2) be susceptible to standardized grading; 3) have large supply and demand; 4) have an unrestricted market; 5) have uncertain supply and demand; and 6) not be perishable. So, while grain, cotton, and tin are strong candidates for futures trading, uncanned fruit, tea, and shoes are not adaptable to futures trading because they do not possess all of these characteristics.... Bitcoin possesses all the characteristics that are needed for a commodity to be traded on a futures exchange.¹⁶⁰

Patrick McLeod has offered a different line of reasoning employing the concept of “constructive possession” as it has developed under US law, leading to the same result:

The legal definition of a commodity is, “[a]ny movable and tangible thing that is ordinarily produced or used as the subject of barter or sale” [*State ex. Rel. Moose v. Frank*, 169 S.W. 333, 336 (Ark. 1914)]. Thus, Bitcoin must be a tangible thing if it is to be a commodity. “Tangible” means that either actual or constructive possession can be exercised over an item [Black’s Law Dictionary 712 (9th ed. 2009)]. Constructive possession means having “ownership, dominion or control” over a particular item and, “dominion over the premises in which the [item] is concealed” [*United States v. Cardenas*, 748 F.2d 1015, 1019 (5th Cir. 1984)]. Historically, the courts have not limited constructive possession to items occupying the physical world. Rather, the courts have embraced those items occupying the digital realm of existence as being subject to their owner’s constructive possession. Therefore, it follows that Bitcoin should be considered a tangible good, because Bitcoins can only be distributed from an owner’s wallet which is in the exclusive possession and control of that owner through their possession of the private key.¹⁶¹

Regardless, US tax practitioners have pointed out that the IRS has recently indicated that it would defer to definitions subject to the rulemaking authority of other agencies, and that the IRS has specifically ruled that:

The word “commodities” is used in section 864(b)(2)(B) ... in its ordinary financial sense and includes all products that are traded in and listed on commodity exchanges located in the United States. Furthermore, the word “commodities” includes the actual commodity and commodity futures contracts.¹⁶²

Accordingly, the CFTC’s determination that Bitcoin is a commodity, and the resulting trading of Bitcoin derivatives on regulated US commodity exchanges such as LedgerX (trading of Bitcoin itself has generally been exempted from CFTC oversight¹⁶³), would arguably require that Bitcoin itself be treated as a commodity for US tax purposes. As Jim Calvin noted in a 2017 article entitled “Adequately Identifying Bitcoin Dispositions for Federal Income Tax Purposes”:

The term commodity for federal income tax purposes is likely to include bitcoin. Thus, because the CFTC has determined that bitcoin is a commodity, it is likely to be treated as such for federal income tax purposes unless otherwise specified. This conclusion is limited to bitcoin. While bitcoin is likely to be a commodity, and unlikely to be a security, there are digital assets that have been, or may be, determined to be securities or other property types.¹⁶⁴

However, despite the above reasons for why Bitcoin might be said to be a commodity for US tax purposes, the IRS has to date remained silent on whether or not Bitcoin is a commodity for US tax purposes.

6.2 Payment: Electronic Money Tokens

Drawing on the Maltese characteristics of Electronic Money Tokens (as set out in Table 1 above), the authors suggest that the following provides a useful set of criteria to determine whether a token constitutes an Electronic Money Token:

Electronic Money Tokens means DLT tokens that:

- (a) are issued by the issuer on receipt of funds at par value, and redeemable at par value with the issuer upon request of the holder;
- (b) provide the holder with a claim against the issuer arising from the funds originally placed against the issuance of the token; and
- (c) are used for the purpose of a payment transaction and are accepted by a natural or legal persons other than the issuer of the token as a payment

Unlike NLT Payment Tokens, Electronic Money Tokens are denominated in legal tender currency and function as any other form of electronic money recorded on non-distributed ledgers. As such, there is no evident reason why Electronic Money Tokens recorded on a DLT should be treated differently for tax purposes than e-money recorded on a non-distributed ledger. Accordingly, in the authors' view it is reasonable to treat Electronic Money Tokens as currency for tax purposes in the same manner as all other forms of e-money.

“Stablecoins” that are collateralized against and pegged to a unit of fiat currency would generally seem to constitute Electronic Money Tokens (note that not all stablecoins meet these criteria). For example, one of the first stablecoins, Tether is denominated in USD on a 1:1 basis and is contractually redeemable for USD on that basis; the holder of one Tether token has a claim against the issuer in respect of the funds held by the issuer of Tether by virtue of that redemption right, and Tether tokens are used for the purpose of payment transactions (largely for the purpose of buying and selling other tokens). Accordingly, in the authors' view, it is reasonable to consider Tether to constitute Electronic Money Tokens, and consequently to treat Tether as currency for tax purposes.

There are a number of other “stablecoins” in circulation. Notably, two trust companies obtained US regulatory approval in September 2018 to issue two new USD stablecoins: the “Gemini dollar” issued by the Gemini Trust Co. (the digital-asset exchange founded by Cameron and Tyler Winklevoss) and the Paxos Standard issued by the Paxos Trust Company.¹⁶⁵ The Gemini and Paxos tokens appear to meet the qualities of an Electronic Money Token, and avoid some of the controversies surrounding Tether.

6.3 Application Settlement Tokens

Application Settlement Tokens provide holders with the same functionality as NLT Payment Tokens, except that they are intended to function as currency only within a particular DLT platform or a limited set of DLT platforms. As such, the analysis of what type of property they constitute for tax purposes is similar to that of NLT Payment Tokens.

As with NLT Payment Tokens, they would not be currency as they are not legal tender nor denominated in currency as with Electronic Money Tokens. As only participants on the particular DLT platform or set of platforms would accept them for payment, they would generally have no utility, value or application outside of the DLT platform on which they were issued, and thus only have value to persons who transact on those platforms. As such, it is unlikely they could be construed as a commodity, as commodities have value in the market at large. Accordingly, it is likely they would simply be intangible property for tax purposes.

6.4 Platform Access Tokens

Platform Access Tokens simply provide holders with access to a platform, which platform's only utility is to host and operate third party applications. The underlying platform is the DLT equivalent of the platform of cloud-based platforms or "Platform as a Service" (PaaS). PaaS is a service delivered through a platform "which allows customers to run their application[s] on the vendor's server."¹⁶⁶ Note that there is generally no DLT equivalent to Infrastructure as a Service (IaaS), as the DLT infrastructure is the distributed computational and memory provided by its participants.

A prime example of Platform Access Tokens is Ethereum, which has no utility other than to enable other developers to host their application on the Ethereum platform.

As Platform Access Tokens simply provide holders with the ability to access a similar platform, there seems little reason to treat them any differently than cloud-based or PaaS rights: a license or right to receive a service. The license or right may be for a single use, multiple or unlimited uses, or may be for a period of time. Unlike PaaS licenses or rights, Platform Access Tokens are generally transferable. However, the mere ability to transfer ownership of a property should not alter the underlying characteristic of the property itself.

6.5 Application Access Tokens

Application Access Tokens provide holders with access to or use of an application, hosted either on a native platform, or a shared third-party platform such as Ethereum. The underlying application is the DLT equivalent of the application of cloud-based software or "Software as a Service" (SaaS).

As Application Access Tokens simply provide holders with the ability to access a similar application, there seems no reason to treat them any different than cloud-based or SaaS rights: a license or right to receive a service. The license or right may be for a single use, multiple or unlimited uses, or may be for a period of time. Unlike SaaS licenses or rights, Application Access Tokens are generally transferable. However, the mere ability to transfer ownership of a property should not alter the underlying characteristic of the property itself.

6.6 Money Market Tokens

Money Market Tokens are generally the tokenized equivalent of money market instruments, such as cheques, treasury bills and certificates of deposit. The technology to create money market tokens is still ongoing, but appears to be close to being market ready.

For example, the open-source protocol Compound has been designed to enable owners of Ethereum ERC-20 based Application Access Tokens to "wrap" their token in the Compound protocol and "deposit" it into a tokenized "money market" so as to earn interest on the token while they continue to hold it. There doesn't seem to be any reason to treat such "wrapped" token money market instruments any differently than non-tokenized money market instruments.

Generally, any returns from the issuer of a money market instrument will be considered to be interest. When a money market instrument is redeemed on maturity, any amount of the redemption over its par value will likewise be considered to be interest. If a money market instrument is issued at a discount and redeemed on maturity, the difference between the issue price and the amount it is redeemed for will be considered to be interest.

If a money market instrument is sold before maturity, any proceeds exceeding the interest accrued to that time will be taxed as income or capital gains depending on whether it was held as inventory, in the course of an adventure of concern in the nature of trade, or on account of capital.

6.7 Debt Tokens

Debt tokens are tokens that are issued establishing a legal lender-borrower or creditor-debtor relationship between the issuer and token holder. The debt may be denominated in fiat currency, or may be denominated in other tokens, or any other units of value. In the authors' view, it is reasonable to treat the issuance, purchase, and disposition of Debt Tokens under the Act in the same way as any equivalent non-tokenized debt instrument, and any payments made that are equivalent to a coupon or interest should likewise be similarly taxed.

6.8 Equity Tokens

Equity tokens are tokens that are issued as share capital in a corporation. The ability to issue Equity Tokens will depend on whether the corporate legislation governing the issuance of shares in the jurisdiction in which the corporation exists will accommodate a tokenized issuance of shares on a DLT. There are obvious corporate advantages to using tokenized shares, such as a secure record of share ownership and significantly reduced costs for public companies by eliminating the need for traditional stock exchanges or transfer agents.

There is currently uncertainty whether the existing corporate legislation in many jurisdictions is sufficient to accommodate tokenized shares. As shares are simply a bundle of rights, there is no legal reason that these rights cannot be represented in tokenized format. However, most legislation requires corporate share registries to be maintained in specific manners, which may not be met through blockchain records. However, in what might be interpreted as an indication that tokenized shares may become a new standard, the Delaware State Legislature passed legislation on July 21, 2017 to expressly allow for the use of blockchain to maintain corporate share registries:¹⁶⁷

In July 2017 Delaware enacted Senate Bill 69, a groundbreaking piece of legislation that provides statutory authority for Delaware corporations to use networks of electronic databases (including blockchain) to create and maintain corporate records. The law expressly permits corporations to trade corporate stock on the blockchain so long as the stock ledgers serves three functions: (1) to enable the corporation to prepare the list of stockholders, (2) to record information, and (3) to record transfers of stock. S.B. 69, 149th Leg., 1st Reg. Sess. (Del. 2017).¹⁶⁸

Several token protocols have been developed to specifically accommodate equity share tokens, including Ethereum ERC-884 and Daura C-Shares. Ethereum ERC-884 was developed to specifically meet the Delaware legislation requirements, whether public or private issuances.¹⁶⁹ A number of companies have already offered and issued tokenized shares, including, Documo, Lykke, and Robinhood. In the authors' view, it is reasonable to treat the issuance, purchase, and disposition of Equity Tokens under the Act in the same way as any other share.

6.9 Collective Investment & Fund Tokens

Collective Investment and Fund Tokens simply represent an interest in a collective enterprise. The nature of the interest will depend on the nature of the legal agreement between the token holders and the issuer of the token. Where the requisite legal requirements are met, the token may constitute an interest in a partnership or trust.

However, many of these collective enterprises are funds that are neither a trust, partnership or corporation under Canadian law or for Canadian tax purposes, and will thus likely be considered to represent ownership of "a direct, proportionate and undivided interest in each property of" the fund in the same way as other off-shore fund structures that don't qualify as a trust or partnership.¹⁷⁰ This appears to be the case with most tokens of this type issued to date.

6.10 Derivative Tokens

The categories of derivative tokens set out in Table 1 above, conceptually cover a broad set of derivatives that exist today in non-tokenized format. As the Maltese categorizations suggest, they are a claim the value of which is derived from underlying off-blockchain base values. The concept of “off-blockchain” should generally be understood to mean off the blockchain on which they were issued. It is entirely possible that the derivative might be based on the value of an asset on a different blockchain or DLT – for example, a tokenized futures contract regarding the value of Bitcoin would be off the native blockchain on which the derivative token was issued.

The UK Financial Conduct Authority has already recognized that tokenized derivatives will be regulated in the manner as their non-tokenized equivalents.¹⁷¹ The authors posit that it is reasonable that the taxation of these token derivatives mirror the taxation of their non-tokenized equivalents for Canadian purposes as well. The tokenization of the debt obligation is generally irrelevant to the nature of the property and its taxation, aside from the issues of ownership, valuation and location.

Among the first types of tokens that will dominate this category appear to be what are generally referred to as “participation right” tokens, or “income-sharing” and “royalty-sharing” tokens. These tokens are generally issued through an ICO in the same way as Utility Tokens, and the proceeds are used by the issuer as capital to finance the development of a DLT platform or application. Purchasers of these tokens acquire a right, as token-holders, to a share of the income or royalty stream generated by the issuer from the issuer’s underlying income or royalty producing assets (instead of the assets themselves). As such, they generally represent a forward purchase contract in the future income of the issuer, which is a future asset of the issuer, and therefore would reasonably be taxed as a forward purchase-agreement.

6.11 Membership Tokens

Membership tokens are simply a tokenized equivalent of non-equity memberships which presumably carry no more value than their non-tokenized equivalent. We are not aware of any membership tokens having been issued to date but presume that they will likely be issued by online social organizations to members to enable them to securely access online activities and membership benefits.

6.12 Ownership Tokens

Ownership tokens generally operate as title to an asset. Ownership of the token is ownership of the underlying asset that does not otherwise constitute a Collective Investment or Fund Token. The underlying asset may be full or partial title to land, income producing assets. It is reasonable to conclude that these tokens would be taxed no different than ownership and title to the underlying property, provided they are legally effective in constituting such ownership and title.

6.13 Summary

In summary, the authors’ view is that it is reasonable to consider that tokens will constitute one of the following types of property for tax purposes (set out in Table 2 below), depending on the rights and restrictions that form or are attached to the token:

Table 2: Token Property Framework (*Simplified*)

| | Token Type | Example | Property for Tax Purposes |
|-----|--|-----------------------|---|
| 1. | Platform Access | Ethereum | License or right to receive a service |
| 2. | Application Access | ERC-20 Utility Tokens | License or right to receive a service |
| 3. | Application Settlement | Ripple | Intangible property |
| 4. | Payment: Non-Legal Tender | Bitcoin | Intangible Property (or commodity?) |
| 5. | Electronic Money | Gemini | Currency / foreign currency equivalent |
| 6. | Money Market Instruments | Compound | Debt instrument |
| 7. | Debt | - | Debt instrument |
| 8. | Equity | ERC-884 | Share |
| 9. | Collective Investment or Fund | 22xFund | Partnership Interest, Unit Trust / MFT Interest, Joint Venture, Co-ownership |
| 10. | Derivative: Financial & Future Participation | Modum | Options or derivative instrument |
| 11. | Derivative: Commodity | - | Options or derivative instrument |
| 12. | Derivative: Credit & Swaps | - | Derivative instrument |
| 13. | Derivative: Contracts for Difference | - | Derivative instrument |
| 14. | Derivative: Non-Financial | - | Derivative instrument |
| 15. | Derivative: Currency | - | Derivative instrument |
| 16. | Membership | - | Intangible property |
| 17. | Ownership/Title Tokens | - | Reflects the underlying property |

7. Taxation: Technical Considerations

With the foregoing fundamental issues in mind, we can now consider some of the primary technical Canadian tax issues are unique to tokens.

7.1 Creation and Issuance of Tokens

(a) POW Validation and Sales: Payment and Platform Access Tokens

Where a taxpayer carries on the activity of proof-of-work “mining” to receive tokens on the token’s native DLT platform, the mining will constitute carrying on a business if it is carried on “in a sufficiently commercial and businesslike” manner.¹⁷² The CRA acknowledged in 2014 that taxpayers may be considered to carry on mining activity as a personal endeavor or hobby.¹⁷³ Taxpayers mining tokens for the purpose of profit will be subject to tax on the resulting business income, whereas taxpayers carrying on a hobby would not be taxed on any income or gains incidentally realized.

The CRA has not provided any substantive guidance as to when a taxpayer may be considered to carry on mining activity as a personal endeavor or hobby. Applying the test set out in *Stewart v. Canada*, the activity will be a taxable business if it is undertaken in pursuit of profit or in a sufficiently commercial manner, or a non-taxable hobby if it is merely a personal endeavour.¹⁷⁴

Prior to 2014, Bitcoin was a relatively unknown idea. Those who knew about it and who decided to spend effort or money acquiring it often did so as an experiment or gamble, wondering what Bitcoin might become or be used for in the future. It was often acquired for the purpose of participating in a “stateless” economy,

with little thought turned towards realizing a profit from reselling it in the future. In such circumstances, it is conceivable that the taxpayer was carrying on a hobby or personal endeavour. Fast forward to the present, the competition for mining Bitcoins has resulted in a dramatic increase in the algorithmic difficulty required to validate and create a Bitcoin block, and thus significantly increased the energy and hardware costs in doing so. Add to this Bitcoin's meteoric rise in price (and meteoric fall), and it stretches the imagination to conceive of a taxpayer incurring these costs to mine Bitcoin for any reason other than to earn a profit.

That said, there are many tokens other than Bitcoin that can be mined, which are often difficult to purchase on an exchange from Canada. For example, where a taxpayer mines a relatively illiquid Application Access Token for the purpose of acquiring access to the token's native application, and the token's native application is not clearly commercial in nature, there may be a strong argument that the mining activity was only a hobby.

If a taxpayer does mine tokens in pursuit of profit or in a sufficiently commercial manner, the second question then becomes: when does the taxpayer realize taxable income?

There are two possible models here. First, the miner could be considered to carry on one activity: performing work to produce inventory which is then held for resale (we will refer to this as the "Inventory Production Model"). Second, the miner could be considered to be carrying on two activities: first, providing services to the native blockchain in consideration for the native token (we will refer to this as the "Validation Services Model"); and second, holding and selling the received tokens, either as inventory or on capital account.

The first model is consistent with the CRA's 2014 statement, which stated that if the activity of mining was carried on as a business, the acquired tokens would be held by the taxpayer as inventory, and as such would need to be valued at the end of the taxation year. This first model was also specifically adopted by the Australian Taxation Office in April 2018:

As a miner carrying on a business, any bitcoin that you acquire from mining is treated as 'trading stock'. As in any other business, proceeds from the disposal of trading stock represent assessable income. Also, even if you don't dispose of your bitcoin, an increase in the total of your trading stock value at the end of the year from any amounts at the start of the year is treated as assessable income, (while a decrease is treated as an allowable deduction). This is also referred to as 'bringing your trading stock to account' at the end of the year. There are three methods for working out the value of trading stock at end of the year. For information about valuing trading stock see information on our website about valuing-trading-stock.¹⁷⁵

However, neither the CRA nor Australian position expressly contemplates the question of when income should be recognized by miners, only that the resulting coins would be held as inventory and the resulting application of inventory rules. Moreover, they do not appear to be fully considered positions. First, they do not address the fact that miners receive two forms of payment: a Bitcoin if they successfully validate a set of transactions, and a portion of a Bitcoin for attempting to do so even if unsuccessful. Second, they assume that a miner will continue to hold any tokens they earn at the end of the year. Third, they assume that a miner would always continue to hold mined tokens as inventory. There does not appear to be any reason why a miner could not hold the mined tokens on capital account. For these reasons, the authors consider the CRA position as being limited in nature, and exhibiting only that taxpayers are free to adopt the first model.

In contrast, the second model is supported by the fact that, on closer examination, a miner does not in fact produce, create or discover the token they receive. A taxpayer who "mines" tokens through proof-of-work undertakes the activity to perform work on the blockchain under a secure algorithmic agreement to validate other users' transactions through solving an algorithmic problem to create a new block on the chain in consideration for receiving (a) a portion of a token for attempting to do so, and (b) a reward token if they succeed in doing so. In this sense, the miner is receiving consideration for services performed.¹⁷⁶ As such, the token would ordinarily be taxable based on the fair market value at the time it is received, subject to our comments in section 5.3 of this paper. While some have argued that this would represent an unfunded tax

liability, the taxpayer is generally able to sell a portion of any “mined” tokens to fund any resulting tax liability.

This is the position taken by the IRS:

Q-8: Does a taxpayer who “mines” virtual currency (for example, uses computer resources to validate Bitcoin transactions and maintain the public Bitcoin transaction ledger) realize gross income upon receipt of the virtual currency resulting from those activities?

A-8: Yes, when a taxpayer successfully “mines” virtual currency, the fair market value of the virtual currency as of the date of receipt is includible in gross income. See Publication 525, *Taxable and Non-taxable Income*, for more information on taxable income.¹⁷⁷

This characterization has been applied to service activities on other tokens as well:

Other cryptocurrencies employ systems that involve the payment of Altcoins in exchange for services. For example, Dash Masternode owners are attributed a portion of all Dash that is mined on the Dash Network in exchange for certain vital services they provide to the Network. Such payments are contingent on the provision of a service and are thus properly characterized as income from business. The Dash Network also allows for third-parties to put forth “proposals” to the Dash Network which, if successful in the voting process, result in the successful proposal “owner” receiving payments in Dash from the Dash Network, on either a one-time or continuous basis depending on the terms of the proposal, in exchange for providing the service to the Dash Network. Such an activity is also properly characterized as income from business.¹⁷⁸

By way of analogy, a plumber who receives in-kind consideration for their services would generally be considered to (1) earn taxable income equal to the fair market value of the in-kind consideration received less the costs incurred to earn that income, and then (2) hold that consideration with a cost base equal to that taxable income. The tokens would then be held as inventory or held on capital account, depending on the intentions of the taxpayer.

Absent clear guidance from the CRA, and ultimately legal rules established by legislation or courts, it seems open for taxpayers to decide for themselves whether they wish to carry on a single business of mining to acquire inventory as in the first model, or two activities of first performing services for consideration and then second holding the coins as either inventory or on capital account. However, the authors suggest that the second model is more consistent with the nature of the activity being performed.

(b) POS Validation and Sales: Payment and Platform Access Tokens

Little has been published by tax authorities or tax academics as to how a taxpayer who carries on the activity of proof-of-stake “validating” to receive tokens on the token’s native DLT platform should be taxed.

As described in section 2.3(b) of this paper, POS Validators earn additional tokens by “staking” their tokens on their native DLT platform to tie their interest in the security of the native DLT to the interests of other token holders. Unlike POW Validators (miners), POS Validators don’t do any work other than possessing tokens and “staking” them.

It could therefore be argued that POS Validators are not providing any service, and that any tokens they receive as validators are received on account of their having been “invested” in the platform, and thus constitute income from property. Under this view, the POS token rewards could be viewed as equivalent to interest paid by the platform.

However, this does not seem to actually be the case. Interest is paid in consideration for lending property to others for their use – either by loan or deposit. POS Validators do not deposit or loan their tokens – they merely “stake” them, which is simply a matter of putting them at risk of forfeiture if they corrupt the validation process. In staking tokens, POS Validators do not lend their tokens to anyone; they continue to hold the tokens and are generally free to unstake the tokens at any time for whatever reason they wish. Moreover, POS Validators do more than simply stake tokens, they validate transactions on their node but without needing to solve POW algorithms. Accordingly, POS Validation, including the staking of tokens, seems more properly construed as providing a service. POS Validators validate transactions on their nodes and stake tokens to demonstrate their trustworthiness and in doing so contribute to the functionality and security of the DLT platform, and are remunerated for this activity.

The notion that POS Validation is a service is further supported by the fact that POS Validation is generally intended to work in tandem with POW Validation. Many DLT platforms anticipate adopting hybrid POW/POS hashing, which enables the platform to reduce energy requirements caused by pure POW Validation while still maintaining its superior security to a degree. This strongly suggests that both POW Validators and POS Validators are performing equivalent services but in different ways. For the above reasons, the authors view that POS Validation can reasonably be regarded as a service and taxed as such.

(c) Issuance of Tokens: ICOs

The taxation of the issuance of tokens by issuers will depend on the nature of the tokens being created and sold. Generally, all tokens other than Payment Tokens and Application Access Tokens will be created and issued through issuances.

(i) Application Access & Platform Access Tokens

Where an issuer conducts an ICO of Application Access Tokens for an application that is functional at the time of issuance, the sale would reasonably constitute a sale of either a license or a sale of a service, depending on the access terms of the token. In either case, the proceeds of sale would be characterized as business income to the vendor. In this model, the acquisition cost to the token purchasers would generally constitute cost of inventory if the token was purchased for the purpose of resale, or the cost of a class 14 depreciable property if the token was purchased for the purpose of using the license for the purpose of using it to earn income.

However, it is not clear that the tax result should be the same for ICOs undertaken by entities that have yet to develop the underlying application, and who conduct the ICO as a means to fund the development of that application. It has been suggested that an ICO is really no different from “crowdfunding”. However, this is generally not the case. In a crowdfunding model, a buyer is pre-buying a particular good or service (such as an electric skateboard), and is entitled to receive that particular good or service once it is produced. As such, in this crowdfund model, the customer expenditure and produced good or service are directly linked, and thus the pre-sale clearly constitutes income to the vendor.

In contrast, in an ICO, there is usually little certainty as to what DLT goods or services a token will “buy” once the application is developed. Instead, the company publishes a whitepaper that sets out the “idea” of the application that they want to build. Prospective token buyers are generally told they will get access of some sort to this application, but what type of access and exactly what functionality the application will provide is usually uncertain. The tokens are rarely “indexed” or tied to a particular good or service or a particular level of application access. As such, it is nearly impossible to link the proceeds to any particular good or service to be delivered.

The primary argument against the idea that ICO proceeds represent a non-taxable capital raise is that the issuer is contractually obligated to provide the goods or services expected by the purchasers of the initial ICO

tokens, and therefore it should not be construed as capital instead of a presale. However, this is not generally the case for most ICO tokens, where the token is not indexed to any particular good or service but simply the commitment to develop a platform that will have the promised functionality. ICO purchasers have no expectation as to any particular good or service that they will receive. Their expectations are no different than the commitment to seed share investors that management will use the invested funds to develop the promised technology. Moreover, the business model of many ICO companies involves developing an application that will earn revenue once launched, and not simply provide goods or services to the initial token holders.

However, if the issuer has promised that only token holders of tokens issued in the ICO will have no-charge access to the application and no profits will otherwise be earned by the issuer through its use, it can be argued that the issuer has contracted to build the application for the exclusive use of ICO token holders and as such the ICO represents a development agreement whereby the technology is being developed on behalf of the ICO investors.¹⁷⁹ In this case, it would be difficult to argue that the proceeds of the ICO were not business income to the issuer, as a presale of the application as a whole.

As the issuing entity is obligated to use the funds generated by the ICO for the development of the promised application, the token proceeds would be income to the issuer, and the issuer would have an offsetting reserve under paragraph 20(1)(m) of the Act in respect of their future obligation to perform the service of developing the application.

This raises the difficult question of how the reserve should be brought back into income, particularly where the development of the application occurs in milestones such that it may have increasing levels of functionality over time as it is further developed. Further, as the development will involve tax-deductible business expenses of the issuer, how much profit should the issuer realize as the reserve is backed out? The appropriate rate for Canadian tax purposes remains unclear. However, the comments of the Switzerland Federal Tax Administration (SFTA) may be instructive as to what a reasonable rate is: the SFTA has stated that the reserve (or provision) must be unwound over time and accounted for against the development expenses in such a way that the issuer generates a minimum annual profit of cost plus 5%, and any remaining balance of the reserve after completion of the application will be included in income.¹⁸⁰ This seems a reasonable course, subject to any particular facts that would render this unreasonable. For example, this flat-rate approach may not be reasonable where the development of the product at its various stages is cheaper or more expensive than expected, and the profit realized for tax purposes may reasonably need to be higher or lower.¹⁸¹

However, it is not clear that this should be the result in circumstances where the issuer has not promised that only token holders will have access to the platform, but rather that other users may access it for a charge whether in fiat currency or other tokens such as Bitcoin or Ethereum. This is not an uncommon circumstance. In this case, it would be incorrect to say that the token holders have only contracted with the issuer to build an application for them. Rather, it is clear that they have agreed to invest in the development of the application in general, and not simply for their use. This suggests that at least a portion, if not all, of the proceeds represents capital to develop the application for the benefit of the issuer, with the value of the token tied to the demand for the application.

The Act does not expressly contemplate the economic reality of this situation, which is fundamentally a capital raise by an ICO. The value of most ICO tokens in the days and months that follow an ICO has little to do with the value of any particular good or service that a holder expects they will be entitled to receive once the application is developed. Instead, people buy and sell the token based on what they perceive to be the value of the underlying “use-case scenario” of the DLT application. If buyers perceive the “use-case” of the idea to be high, this suggests that the number of future customers of the application will also be high, which entails that the demand for the token will be high, thereby driving up the trading price of the token. If initial token hype gives way to the realization that the use-case is low, demand is perceived to be low, and the

value of the token plummets. In other words, buyers of most ICO tokens are investing in the expected customer demand of the business once the application is developed – a function of the underlying idea, the quality of the business team, their ability to meet milestones and other business metrics.

While holders of Application Access Tokens have no equity claim on the issuer's profits or assets, the initial investment and subsequent trading value is, in practical terms, no different than shares in a start-up company. And shares of start-up technology companies often reach astronomical levels long before the company has a saleable product or service, and long before they earn any revenue. These tech investors are buying shares based on their belief that the company's business idea will generate significant future demand for the company's products or services, which will result in other buyers wanting to buy their shares for more than the amount they initially invested. Buyers of ICO tokens are no different in this regard. They are investing in the underlying business idea in the hopes that it will generate demand for the business which will increase the value of their tokens. And the start-up company uses the proceeds of early-round share sales or ICO token sales in exactly the same manner: to develop, grow and operate the business.

In a very real sense, ICOs of Application Access Tokens represent a revolution in the form of capital investment. Shareholders invest in a business through an equity model, whereby the value of their shares will increase or decrease based on the increase or decrease in the value of the underlying business, which is ultimately a product of customer demand and business management. Token holders invest in a business through a non-equity model, whereby the value of their tokens will increase or decrease based on the increase or decrease in the value of the underlying business, which is also ultimately a product of customer demand and business management. The amount invested in both cases is treated by the business as capital to develop, grow and operate the business.

The Department of Finance and the CRA should recognize this reality and provide guidance that taxpayers carrying out an ICO to raise capital to fund business projects are entitled to treat ICO proceeds in the same way as share capital under section 9 of the Act as a non-taxable capital receipt. The fact that securities regulators in most jurisdictions in the world have chosen to treat tokens of ICOs of companies that do not have a functional application as regulated securities in the same way as shares lends even more credence to this view.

(ii) All other Tokens

A consideration of the taxation of the genesis of each of the remaining token types (tokens other than Payment Tokens, Platform Access Tokens, and Application Access Tokens) is beyond the scope of this paper. However, to the extent the characterization of these tokens as set out in section 6 of this paper is correct, their taxation would reasonably follow the taxation of their equivalent non-tokenized types of property. For example, an ICO (or "ETO") of Equity Tokens would likely be taxed in the same manner as a share issuance.

(d) Forks

The two primary issues arising from forks are (1) whether the fork constituted a disposition of the original token by its holder, and (2) how to determine the tax basis of the two resulting tokens after the fork.

(i) Hard Forks

Some tax practitioners have concluded that the technical events giving rise to a hard fork entail that there was no exchange of the original token for the forked token, and that the forked token was received as a consequence of holding the original token.¹⁸² This suggests that the fork was one of three possible tax events: (1) the original token was divided into two tokens (another identical token and the forked token), the receipt of which would not constitute taxable income and the basis of the two resulting coins would be

required to be apportioned between them, (2) the forked token was received as a gift from the administrators, or (3) the forked token was received by the holder of the original token as an in-kind distribution of property on the original token, in which case the value of the forked token would be considered to be taxable income to the recipient, which would then form the basis of the forked token.¹⁸³

The first alternative seems to intuitively accord with the underlying event – which is simply a change in the code of a single blockchain to address an issue identified by the blockchain community, which results in two versions of the blockchain existing with a shared history and with the forked DLT and token chain addressing the identified issue. As such, it seems akin to a property split. This seems to be the position taken by the UK HM Revenue and Customs (HMRC), which has stated that the event may constitute an “asset derived from other assets” with the result that the taxpayer must “apportion an appropriate amount of the acquisition cost of the ‘old’ cryptocurrency to the ‘new’ cryptocurrencies that the person acquires.”¹⁸⁴ However, unlike an asset split, the token holder does not hold two pieces of property which together form the whole of what they originally held. This is reflected in the economics of many token forks. When Bitcoin Cash forked from the Bitcoin network on July 23, 2017, the value of Bitcoin immediately dropped from USD\$2800 to USD\$2700, and Bitcoin Cash began trading at USD\$555, representing an immediate 16% gain in net value for original holders.¹⁸⁵

The second alternative seems problematic in that forks do not generally evidence any donative intent. They are effected to fix a perceived problem in the blockchain, or to advance the technology underlying the token – not to gift property.

The third alternative seems intuitively correct in that the fork results in the token holder continuing to hold a token identical to the original token and also holding a second new and different token. However, it is difficult to view the forked token as a distribution of property as that concept has been employed to date. Distributions of property, such as a cash distribution or distribution in kind, have always involved a distribution of property that had an existence separate and apart from the property on which it was distributed. The forked token exists only as an alteration of the original token, and its existence is thus derivative – only owners of the original token could, at first instance, possess a forked token. However, there is one dividend-in-kind which seems to very accurately reflect a fork: a stock dividend. The token holder is in the same position as the shareholder – they each continue to hold the original token/share and the new token/share of a different class with different rights and restrictions.

The characterization as a dividend in kind raises the difficult question of how the value of the forked token should be calculated, as there was no existing market for it at the moment of its creation. One position would be to say that the value should be nil the moment it was created, which would necessarily be prior to any trade of the new forked token. A second position would be to say that the value of the forked token is the purchase price of the first trade made after the time the token holder’s wallet was credited with the forked token.¹⁸⁶ A third option would be to value it at its end of day trading price. But as few tokens’ markets have an end of day, this would result in each taxpayer’s value in their tokens being dependent on the time zone they were living in, which seems equally arbitrary.

The American Bar Association has expressed that, in its view, if the correct characterization is that of a stock dividend, the value of the token received should be considered to be nil on the basis that its equivalent would be a pro-rata stock dividend paid to a common shareholder by a corporation with one class of stock, where the additional stock received is akin to a stock split on account of the fact that the shareholder has received nothing out of the corporation’s assets for his use and benefit, and the corporation has not experienced a change in its aggregate assets or its outstanding liabilities.¹⁸⁷

For Payment Tokens and most Utility Tokens, the authors’ view is that it is reasonable to characterize a hard fork as a distribution of property equivalent to a stock dividend, and suggest that it is reasonable to value the forked token as being nil on account of the fact that it is economically equivalent to a pro-rata stock dividend

of common shares and no market existed for the forked token at the moment of its genesis. However, the same may not be true for Counter-Party Tokens were the fork results in the holder having increased economic claims over the counterparty.

(i) ***Soft Forks***

Absent a counterparty, soft forks would generally not constitute a taxable event as the holder did not receive or realize on any property or interest – it is akin to a software upgrade. However, a soft fork of a Counter Party Token that changes the holder’s rights against the counterparty may constitute a deemed disposition and reacquisition of new property if the change is economically substantive. In such a case, if the token is an Equity Token that legally constitutes a share or a Fund Token that legally constitutes a partnership interest, a section 85 or 97 election may be available to cause the event to occur on a tax-deferred basis. However, for other types of counterparty tokens, a fork that changes the economic position of the holder would likely be a taxable event.

7.2 Cost Base

The calculation of a taxpayer’s cost basis in a token or set of tokens will depend on whether the taxpayer holds the tokens (a) as inventory of a business, (b) as inventory of an adventure or concern in the nature of trade, or (c) on capital account.

The test for whether a taxpayer holds a token as inventory or on capital account is no different than the test as applicable to any other form of property. If the taxpayer carries on a business of buying and selling, or trading, tokens for profit, the tokens will be inventory from a business under the definition of “inventory” in subsection 248(1) of the Act.

Canadian courts have determined that the primary considerations relevant to whether a taxpayer acquired and held their tokens as inventory or on capital account are:

- *Frequency of transactions*: Whether there is a history of extensive buying and selling of bitcoins or of a quick turnover of properties.
- *Period of ownership*: Whether the Bitcoins are usually owned only for a short period of time.
- *Knowledge of token markets*: Whether the taxpayer has some knowledge of or experience in the bitcoin markets.
- *Relationship to the taxpayer’s other work*: Whether the Bitcoin transactions form a part of a taxpayer’s ordinary business.
- *Time spent*: Whether a substantial part of the taxpayer’s time is spent studying the Bitcoin markets and investigating potential purchases.
- *Financing*: Whether the bitcoin purchases are financed by some form of debt.
- *Advertising*: Whether the taxpayer has advertised or otherwise made it known that he/she is willing to purchase Bitcoins.¹⁸⁸

If the taxpayer does not hold the tokens as inventory in a business, but purchases the tokens with a legitimate intention of gaining a profit from the purchase through a subsequent disposition or similar profit-making scheme, the tokens may be inventory held in the course of an adventure or concern in the nature of trade.¹⁸⁹ The CRA has stated that whether a taxpayer is considered to acquire a property in an adventure or concern in the nature of trade will depend on the taxpayer’s conduct, whether the nature of the property could provide any utility or enjoyment other than profit, and the taxpayer’s intentions.

If the tokens are not held as inventory or as an adventure or concern in the nature of trade, they will generally be held on capital account.

Note that subsection 10(15) of the Act has the effect of providing that Derivative Tokens that are a swap agreement, a forward purchase or sale agreement, a forward rate agreement, a futures agreement, an option agreement, or any similar agreement are deemed not to be inventory of the taxpayer for purposes of section 10 of the Act.

Arguably, the only set of unique considerations that tokens present in this analysis, as compared to any other type of property, is in the case of tokens that are acquired and held by a taxpayer for the purpose of disposing of them in the future for other goods and services. This would include issuers of tokens in an ICO who use the tokens received as working capital to fund the development of their business, and vendors of goods and services that accept tokens as payment for the primary purpose of attracting customers from the token economy. In the authors' view, such entities would be considered to hold the tokens on capital account such that any disposition would give rise to capital gains or losses, as the purpose of their acquisition and holding is to participate in the token economy, not to profit from a subsequent disposition.

(a) Inventory

A taxpayer's starting cost of tokens held as business inventory is the cost the taxpayer incurred to acquire the inventory. According to the CRA, this will generally include "the original cost of the particular item of inventory plus all costs which may reasonably be considered as having been incurred to bring that particular item of inventory to its condition and location at the end of the taxation year", including cost of direct labour, applicable share of overhead, and any excise tax incurred in acquiring the tokens as inventory.¹⁹⁰ For miners who acquired their tokens as inventory through POW Validation, and who adopt the Inventory Production Model discussed in section 7.1(a) of this paper, these costs would generally include the non-capital costs incurred in performing the mining work or services. For taxpayers who acquired their tokens through POS Validation, these costs would be relatively minimal as significantly less energy and work would be required to perform the validation. For taxpayers who acquired their tokens through purchase, the initial cost would be the purchase amount and any fees paid to conclude the transaction.

Subsection 10(1) provides that the cost of a taxpayer's business inventory must be recalculated at the end of each taxation year as (1) the lower of (a) the cost at which the taxpayer acquired the property, or (b) its fair market value at the end of the year; or (2) at fair market value using the mark-to-market method under regulation 1801.

A taxpayer's starting cost of tokens held as inventory of an adventure or concern in the nature of trade will initially be calculated in the same manner as business inventory. However, subsection 10(1.01) provides that this cost calculation will form the tax cost of the property until it is disposed of, such that a taxpayer is not entitled to revalue the inventory at year end using a lower fair-market value amount or adopt a mark-to-market method.

If the taxpayer records the value of their token inventory at the cost at which they acquired the property, and includes any amount in respect of depreciation, obsolescence, or depletion in the calculation of that cost, paragraphs 12(1)(r) and 20(1)(ii) will together require that those included amounts be included in income in that year, but deducted in the following year.

The primary question facing taxpayers who hold their tokens as inventory is whether the cost of inventory should be calculated on a token-by-token basis or averaged as functionally-fungible property. Regarding inventory in general, the CRA has stated that:

Where it is practical to identify [inventory] costs by reference to specific items, the cost is determined by ascertaining the laid-down cost of the specific items. If it is not practical to

determine cost by reference to specific items, it is necessary to use an arbitrary cost selection method which has the effect of making a presumption as to the order in which inventory is sold. Among the methods most commonly used in determining cost are:

- specific item
- average cost
- first in, first out (FIFO)

The last in, first out method (LIFO) and the base stock method are not accepted for income tax purposes as methods of determining cost.

Canadian taxpayers are accordingly free to choose whichever method most accurately reflects their income and loss.¹⁹¹ The IRS has stated that a US taxpayer's basis of Payment Tokens must be calculated on a token-by-token basis based on the fair market value of the token on the date received.¹⁹² The CRA has made no such pronouncement, and there are good reasons to conclude that tracking the cost of specific tokens or partial tokens is impractical, and does not accurately portray a taxpayer's true income or loss:

- *Manipulation of taxable income:* Sophisticated investors can time the trading of particular tokens with unique cost basis to generate artificial gains or losses and manipulate their tax liability based on each token's particular historical cost without affecting their economic gain or loss, particularly in volatile markets.¹⁹³
- *Arbitrary taxation:* Most taxpayers using exchanges to sell tokens have little control over which particular token is sold, as they are generally treated as functionally-fungible by the exchange.
- *Tokens are functionally-fungible property.* The only particularity of any given token is its unique hash identifier and its history of recorded creation and transactions on its native DLT. While arguably not a currency or commodity (as discussed in section 1.1(a) of this paper), the value of a particular token is not based on its particularity, unless it has been identified as a "tainted token" based on previous loss or theft. However, even printed legal currency notes generally have individual serial number identifiers which can serve the same function as token hash identifiers (though with more difficulty). As such, it appears reasonable to treat tokens as having a fungibility that is functionally equivalent to currency or foreign currency (what is referred to as "functional-fungibility" in this paper).¹⁹⁴
- *Practical Impossibility:* Most token wallets do not provide any integral method to differentiate between different tokens on the same DLT. Rather, a taxpayer would be required to individually investigate each token's history on the blockchain to determine the date of acquisition of each portion of each token sold. Many tokens are purchased and sold as combinations of partial tokens from other vendors. For example a taxpayer may purchase portions A and B based on a whole price of \$100, portions C and D based on a whole price of \$200, and portions E and F based on a whole price of \$300, and then subsequently sell portions A and D to one buyer, B and F to another buyer, and portions C and E to a third buyer, each at a different price. Moreover, this may happen many thousands of times in a single day for some traders. And given the functional-fungibility of tokens, neither the vendors nor sellers care which token portions are being traded – unless they are tainted due to previous theft on the blockchain.¹⁹⁵

Moreover, the extreme volatility of token markets suggests that the FIFO method does not accurately portray a taxpayer's true income or loss.

Based on the foregoing, it seems reasonable to adopt the position set out by the UK HMRC: tokens that are purchased and sold without regard to any identification of the particular token being purchased and sold are reasonably determined on an averaged or pooled basis.¹⁹⁶

(b) Capital

A taxpayer's adjusted cost base of tokens held as capital property will be the amounts incurred to acquire the tokens, subject to adjustment under section 53 of the Act. Note that certain types of tokens may require specific adjustments under section 53, such as Equity Tokens that constitute share capital, Collective Investment or Fund Tokens that constitute a partnership or trust interest, or Debt Tokens that constitute a bond or debenture.

In accordance with section 47 of the Act, if a taxpayer holds tokens that are "identical properties", the adjusted cost base of those tokens is averaged. Arguably, the above discussion of the functional-fungibility of tokens suggests that they are in fact identical properties.

The Act does not generally define the phrase "identical properties". Subsection 248(12) provides that debt obligations will be deemed to be identical property if they are (a) issued by the same debtor, and (b) identical in respect of all rights, whether in equity or otherwise, immediately or in the future, and absolutely and contingently, except as regards to their principal amount. This specific deeming rule would apply to Debt Tokens (together with the specific averaging rules applicable to debt instruments in subsection 47(2) of the Act).

Other types of tokens would arguably also be identical property under subsection 47(1) on the same basis – if they are (1) issued on the same blockchain or DLT, and (2) carry identical rights and restrictions applicable to the holder. Based on this view, if the only difference between tokens is their respective unique DLT identifying hash (arguably no more differentiating than a share certificate number), their adjusted cost base would be required to be averaged under subsection 47(1). For example, two Bitcoins with two purchase amounts of \$100 and \$15,000 would be issued on the same blockchain and provide their holder with identical rights and restrictions, and thus have an averaged cost basis of \$7550 each.

7.3 Income/Loss - Secondary purchases and sales

Most of this paper has set out the considerations and principles regarding how a taxpayer is taxed when they acquire and dispose of a token, whether in the process of buying a good or service in consideration for the transfer of a token, or in the process of trading tokens as a trader, which may render this section somewhat anticlimactic.

Canadian taxpayers who owned and disposed of a token will be deemed to dispose of property and realize taxable income or loss, or taxable gain or loss, calculated based on (1) the particular type of property the token represented, (2) whether the token was held as inventory or capital property, and (3) the taxpayer's cost or adjusted cost base of the token(s).

If the transaction is an arm's length disposition of a token for goods or services, the transaction will be considered to be a barter transaction, such that the taxpayer would generally be considered to dispose of the token for proceeds equal to the fair market value of the goods or services bartered for.¹⁹⁷ If the transaction is not an arm's length disposition, the taxpayer would arguably be considered to dispose of the token for proceeds equal to the fair market value of the token under subsection 69(1).

7.4 Income/Loss - Remuneration

Taxpayers are required to include in income the value of any property received in respect of their employment under section 5 or 6, and the value of any property received as consideration for services provided under section 9. Accordingly, the value of any tokens received as such are required to be included in income.

Tokens are generally not eligible to be treated as employment stock options under section 7, as section 7 only applies to “securities”, which is defined for purposes of section 7 in subsection 7(7) as shares of a corporation or units of a mutual fund trust. Accordingly, Equity Tokens that legally constitute share capital would be eligible securities under section 7, but most other tokens would not.

Businesses that pay their arm’s length employees or contractors using tokens will generally realize a taxable disposition of the token, and be entitled to deduct the value of the token as an expense – regardless of whether the value of the services, calculated in fiat currency, is more or less than the fiat value of the token paid to the employee or contractor. Note that employers will still be liable for source deductions in respect of remuneration paid to employees even where the remuneration is paid in the form of tokens.

7.5 Income/Loss - Profits and distributions received by holders from issuer

Any property received by a token holder from the issuer of a token (whether cash or other tokens) on account of their holding the token would generally be taxable based on the nature of the right under which the property was received. For example, distributions on a Debt Token would likely be taxable as interest, and distributions on an Equity Token that legally constitutes a share would likely be taxable as a dividend.

Tokens received as an airdrop would, absent any other reason why the tokens were received, be taxable as a distribution in kind using the fair market value of the tokens when received.

7.6 Cross border issues

(a) Foreign property reporting

Pursuant to subsection 233.3(1) of the Act, taxpayers are required to report their “specified foreign property” if it has a total cost in excess of \$100,000 at any time during the taxation year on Form T1135 (Foreign Income Verification Statement).

Clearly, certain tokens would fall under the definition of “specified foreign property” based on the type of property they represent. For example, Equity Tokens that constitute shares in a foreign corporation would be specified foreign property as shares of a foreign company under paragraph (c) of the definition of “specified foreign property”. Similarly, Debt Tokens and Derivative Tokens may be caught under paragraphs (g), (h) and (i) of the definition of “specified foreign property”. Electronic Money Tokens denominated in fiat currency, such as Tether, would arguably constitute a convertible or exchangeable right to funds held outside Canada, and would thus seem to constitute “specified foreign property” under paragraphs (i) and (a) of the definition.

However, the issue is less clear in respect of NLT Payment Tokens and other Native Utility Tokens. In considering whether Bitcoin constitutes "specified foreign property" as "funds or intangible property" included under paragraph (a) of the definition of "specified foreign property" in subsection 233.3(1) of the Act, the CRA has stated:

Funds or intangible property situated, deposited or held outside of Canada is included in paragraph (a) of the definition of "specified foreign property" in subsection 233.3(1) of the Act. In our view, digital currency would be funds or intangible property and would be specified foreign property of a person or partnership to the extent that it is situated, deposited or held outside of Canada and not used or held exclusively in the course of carrying on an active business.¹⁹⁸

Insofar as a token constitutes intangible property, the CRA’s conclusion seems to be non-controversial. However, it begs the question: when is a token “situated”, “held”, or “deposited” outside of Canada?

As discussed in section 5.4 of this paper, tokens exist everywhere there are nodes in their native blockchain or distributed ledger, and as such cannot be said to be “situated” in any particular place any more than they can be said to be situated everywhere and nowhere. Note that this is very different from an electronic bank account balance, as a bank account balance is maintained on a ledger controlled by a bank (or other financial institution) on their computers in the jurisdiction where they are licensed to provide banking services, and is subject to the laws of that jurisdiction in so far as the bank is subject to those laws. The bank account does not exist simultaneously around the world. Nor can a token be said to be “situated” where its wallet is located, as a wallet is merely a set of private keys (i.e., code) that enable a person holding those keys to access the tokens associated with those keys.

The concept of where a token is “held” seems more promising. As discussed in section 5.2 of this paper, ownership of tokens for tax purposes arguably best rests in the incidents of possession, which in turn is best evidenced by possession and control of the wallet private keys of a token. As such, it seems reasonable to posit that a token is held in the location in which the owner of the wallet accesses and exercises control of their wallet private keys.

For example, if the private key wallet is held by a Canadian taxpayer in Canada, it seems reasonable to assert that the tokens are held by the taxpayer in Canada. But then what does it mean to “hold” a wallet in Canada? Presumably it means that the taxpayer can exercise control of those keys from Canada. For example, a taxpayer whose private keys are held on a USB wallet exercises control of their tokens by holding the private keys on the USB wallet. If the private key wallet is held in a safety security deposit box in Switzerland, the tokens would arguably be held in Switzerland as the taxpayer would need to go to Switzerland to exercise control of the tokens associated with the wallet.

How would this analysis work in the case of a taxpayer who uses an online wallet hosting service? Online wallet service providers provide a software platform to host a wallet that is contractually owned by the taxpayer. The service provider collects a fee from the taxpayer for providing the Application Program Interface (API) to access the user’s wallet online from anywhere in the world. The result would reasonably not be any different than in a circumstance where a taxpayer uploaded their intellectual property onto a cloud server hosted by a third-party service provider, which service provider charged the taxpayer a fee for hosting the intellectual property and providing an API to access it anywhere in the world. If the taxpayer can access that intellectual property from the jurisdiction of their tax residence, there would be no reason to conclude that the intellectual property constitutes specified foreign property of the taxpayer just because the taxpayer contracted with a cloud storage provider to host that data on its servers. Similarly, if a Canadian taxpayer owns the wallet and can control the wallet and the tokens associated with it from Canada, the tokens associated with the wallet would reasonably be concluded to be “held” by the taxpayer in the jurisdiction of their tax residence in the same manner as all intellectual property held by them.

This result would reasonably be no different in the case of wallets hosted by online token exchanges. Most token exchanges simply host a wallet owned by the taxpayer in the same manner as online wallet service providers, and provide an API that enables the taxpayer to control both the wallet and enter into trade transactions with other taxpayers. The taxpayer pays the exchange fees for the license to use the API and facilitate the execution of trades.

For example, Coinbase, a prominent US and UK token exchange platform, provides in its User Agreement that it provides the user with “Digital Currency Services”, which include:¹⁹⁹

- One or more hosted digital currency wallets enabling you to store, track, transfer, and manage your balances of certain supported digital currencies, like Bitcoin or Ethereum (the "Digital Currency Wallet" and "Digital Currency" respectively);
- A Digital Currency exchange service enabling you to obtain prices for your purchases and sales of Digital Currencies (a "DC Exchange");

- A Digital Currency conversion service enabling you to buy and sell Digital Currencies in transactions with Coinbase UK (the "Conversion Services").

The Coinbase agreement goes on to state that “Your Digital Currency Wallet enables you to send Digital Currency to, and request, receive, and store Digital Currency from, third parties by giving instructions through the Coinbase Site.”

It may be argued that this amounts to “depositing” a token with Coinbase such that it is held by Coinbase in the UK. However, this is likely not the case. The Federal Court of Appeal accepted that the term “deposit” has the following meaning:

The term "deposit" has a deceptive appearance of simplicity. Its primary dictionary meaning is "something laid /up in a place or committed to the charge of a person for safekeeping". Its application to banking probably reflects the historical origins of modern banks in the goldsmiths' depository functions. A more technical meaning is derived from a consideration of the contractual nature of the banking relationship, which has been consistently characterized judicially as one of debtor and creditor (see §3202). In this sense a deposit is a contract by which a customer lends money to a bank. Its terms may vary as the ingenuity of bankers and customers may devise.²⁰⁰

Under this definition, deposit could mean (a) committed to the charge of a person for safekeeping, or (b) lent to a person under a debtor-creditor agreement similar to banking. In the case of the Swiss safety deposit box, the taxpayer has likely committed the USB wallet to the charge of a person for safekeeping, and thus deposited their token in Switzerland such that the tokens associated with that wallet would likely be “specified foreign property”.

As in the case of a wallet hosted online by a third-party service provider, the taxpayer has not transferred their wallet to the service provider or committed it to their charge for safekeeping, nor has any debtor-creditor relationship been formed. Rather, the service provider is hosting the wallet on their servers as a convenience to enable the taxpayer to easily access and trade on their trading platform. The wallet remains the property of the taxpayer, and the taxpayer maintains *de facto* and *de jure* access and control over their wallet at any time from the jurisdiction in which they reside. The online exchange is simply hosting the taxpayer’s intellectual property no different than any other intellectual property hosted on an online server. Accordingly, the authors posit that, in such circumstances, contrary to the CRA’s stated position, the tokens would reasonably not constitute "specified foreign property" under subsection 233.3(1) of the Act, and reasonably not be required to be reported any more than any other intellectual property the taxpayer has contracted to be hosted on cloud servers.

However, where a taxpayer converts or exchanges their tokens on a foreign exchange into fiat currency on that exchange, including in the form of non-tokenized e-money, the money will generally be held either on deposit in the bank account of the foreign exchange in a foreign jurisdiction, or on a private ledger hosted by the exchange as a regulated financial services provider. As the money exists in a particular location, and is controlled by the exchange either in their bank account or on their internal ledger, the money would arguably then constitute “specified foreign property”.

Interests in other property which derives its value from tokens, such as an interest in a foreign corporation or partnership which holds tokens, will generally constitute specified foreign property as such corporation or partnership exists in the foreign jurisdiction from which it derives its legal existence, subject to specific carve-outs in the Act. As the CRA has stated:

An interest in a partnership that owns or holds specified foreign property is included in paragraph (e) of the definition of "specified foreign property" in subsection 233.3(1) of the Act, however, pursuant to paragraph (o) of the definition, the partnership interest would not be specified foreign property if the partnership is a specified Canadian entity. A partnership is a

specified Canadian entity if, pursuant to paragraph (b) of the definition of "specified Canadian entity" in subsection 233.3(1) of the Act, the total of all non-resident members' shares of the income or loss of the partnership for the fiscal period is less than 90% of the total income or loss of the partnership for the period.²⁰¹

(b) FAPI

It is well beyond the scope of this paper to consider how the foreign accrual property income (FAPI) rules in the Act might apply to all circumstances in which a foreign affiliate (FA) of a Canadian taxpayer might deal with tokens.

Rather, this section considers whether an FA that holds or disposes of tokens may result in the FA being considered to earn FAPI as:

1. **Income Received on Tokens:** income from an "investment business", as defined in subsection 95(1) of the Act, on the grounds that it is a business the principal purpose of which is to derive "income from property (including interest, dividends, rents, royalties or any similar returns or substitutes for such interest, dividends, rents, royalties or returns)", which income would thus be included as "income from property" under paragraph A of the definition of FAPI;
2. **Income from the Disposition of Tokens Held as Inventory:** income from an "investment business", as defined in subsection 95(1) of the Act, on the grounds that it is a business the principal purpose of which is to derive "profits from the disposition of investment property", which income would thus be included as "income from property" under paragraph A of the definition of FAPI;
3. **Income from Tokens Held as an Adventure in the Nature of Trade:** "income from an adventure or concern in the nature of trade" and thus "income from property" as defined in subsection 95(1) of the Act, which income would thus be included under paragraph A of the definition of FAPI; or
4. **Gains from the Disposition of Tokens Held as Capital Property:** capital gains from the disposition of property that is not "excluded property", which income would thus be included under paragraph B of the definition of FAPI.

Income Received on Tokens

Generally, Native Utility Tokens, including Payment Tokens, would not enable a holder to earn "interest, dividends, rents, royalties or any similar returns or substitutes" based on holding the token, and as such would not give rise to income from property that would constitute FAPI. However, each of the Counterparty Tokens enumerated in Table 1 above (other than Electronic Money Tokens), contemplate enabling holders to earn such returns. Such income would generally be considered to be income from an "investment business" under section 95(1) and thus FAPI unless:

- (1) the business is carried on at arm's length by the FA and is carried on by the FA as a foreign bank, trust company, credit union, insurance corporation regulated under specified laws, or a trader or dealer in securities or commodities the activities of which are regulated under the laws of the country in which the FA exists, the country the business is principally carried on in, and in each jurisdiction in which the business is carried on through a permanent establishment; and
- (2) the FA employs more than 5 employees full time in the active conduct of the business, or the equivalent of more than 5 full time employees.

In order to meet this exclusion, the tokens in question would need to be a “security” or a “commodity”. The authors’ view, as detailed above in section 6.1(b) of this paper, is that tokens are not generally “commodities” for Canadian tax purposes, though there is some uncertainty on this issue. However, whether or not a token is a “security” or “commodity” for the purposes of this exclusion will depend on whether the tokens are regulated as such in the jurisdictions of the FA in which it carries on its activities – not whether they are regulated as such in Canada.

Taxpayers should also consider whether tokens received by an FA through POS Validation or by way of an airdrop might constitute a return on the tokens that would amount to an investment business. As discussed in section 7.1(b) of this paper, the authors’ view is that the receipt of tokens from POS Validation is best characterized as business income from the provision of services. If this is the case, then tokens received from POS Validation would not constitute income from property and would not amount to FAPI under this category. However, if this is not the case, then if the principal purpose of holding the tokens is to stake them to earn additional tokens through POS Validation, the additional tokens received may be considered to be received in the course of an investment business, and thus constitute FAPI.

Income from the Disposition of Tokens Held as Inventory

Generally, it will be possible for an FA to carry on a business the principle purpose of which is to earn income from the disposition of any type of token – i.e, as inventory. Accordingly, if such tokens constitute “investment property” within the meaning of subsection 95(1), the resulting income will generally constitute FAPI.

“Investment property” is defined in subsection 95(1) as including:

- (a) a share of the capital stock of a corporation other than a share of another foreign affiliate of the taxpayer that is excluded property of the affiliate,
- (b) an interest in a partnership other than an interest in a partnership that is excluded property of the affiliate,
- (c) an interest in a trust other than an interest in a trust that is excluded property of the affiliate,
- (d) indebtedness or annuities,
- (e) commodities or commodities futures purchased or sold, directly or indirectly in any manner whatever, on a commodities or commodities futures exchange (except commodities manufactured, produced, grown, extracted or processed by the affiliate or a person to whom the affiliate is related (otherwise than because of a right referred to in paragraph 251(5)(b)) or commodities futures in respect of such commodities),
- (f) currency,
- (g) real property or immovables,
- (h) Canadian and foreign resource properties,
- (i) interests in funds or entities other than corporations, partnerships and trusts, and
- (j) interests in, or for civil law rights in, or options in respect of, property that is included in any of paragraphs (a) to (i);

The Counterparty Tokens enumerated in Table 1 (see section 6 of this paper) may constitute the properties described in the above paragraphs (b), (c), (d), (e), (g), (h), (i) or (j) in the definition of “investment property”, such that the disposition of such tokens held as inventory may constitute FAPI.

However, it is less clear that Native Utility Tokens, including Payment Tokens, would constitute “investment property”. To be such, they would seemingly have to be either a commodity or commodities futures contract

sold on a commodities or commodities futures exchange under paragraph (e), or “currency” under paragraph (f).

As discussed in section 1.1(a) of this paper, NLT Payment Tokens are unlikely to constitute currency, and are difficult to construe as “commodities” within the definition historically used by the CRA and the definition used in Canadian securities legislation. Moreover, even if they are commodities, the tokens would only be “investment property” if they are traded on a “commodities or commodities futures exchange”, which term does not seem to include token exchanges that are not regulated as commodities or commodities futures exchanges. Moreover, if the tokens are not sold on any exchange but rather through direct peer-to-peer sales, the tokens do not appear fall within the scope of paragraph (e).

Platform Access Tokens, Application Settlement Tokens and Application Access Tokens similarly are not currency and seem even less likely to be a commodity than NLT Payment Tokens. As discussed in section 6.3 of this paper, Application Settlement Tokens seem less likely to be commodities than NLT Payment Tokens for the additional reason that their value is limited to serving as a medium of exchange only on their native ledger and not in the market at large. As discussed in paragraph 6.4 of this paper, Platform Access Tokens are effectively a license or right to receive a DLT PaaS service, which is not generally considered to be a commodity. As discussed in paragraph 6.5 of this paper, Application Access Tokens are effectively a license or right to receive a DLT SaaS service, which is not generally considered to be a commodity. Accordingly, it seems reasonable that these tokens would not constitute “investment property” under subsection 95(1).

Income from Tokens Held as an Adventure in the Nature of Trade

Any income or gains realized by an FA from a disposition of tokens held as an adventure or concern in the nature of trade will generally constitute “income from property” and thus FAPI under paragraph A of the definition of FAPI. See section 7.2(a) of this paper, discussing when a token might be considered to be held as an adventure or concern in the nature of trade. It is worth noting that a FA carrying on an active business of trading tokens would not generally be considered to hold those tokens as an adventure or concern in the nature of trade, but rather as business inventory.

Gains from the Disposition of Tokens Held as Capital Property

Any gains realized by an FA from a disposition of tokens held as capital property will generally constitute FAPI under paragraph B of the definition of FAPI unless the tokens constitute “excluded property”. Subsection 95(1) defines “excluded property” as including property “used or held by the foreign affiliate principally for the purpose of gaining or producing income from an active business carried on by it” (the remainder of the types of property enumerated as “excluded property” are largely irrelevant to tokens). Accordingly, gains from the disposition of tokens that are held as capital property used for the purpose of earning income from an active business carried on by the FA would seemingly not generally constitute FAPI.

“Active business” is defined in subsection 95(1) as any business carried on by the foreign affiliate other than:

- (a) an “investment business” carried on by the FA,
- (b) a business that is deemed by subsection 95(2) to be a business other than an active business carried on by the foreign affiliate, or
- (c) a non-qualifying business of the foreign affiliate.

An “investment business” is defined in subsection 95(1) to be a business the principal purpose of which is to derive income from property (including interest, dividends, rents, royalties or any similar returns or substitutes for such interest, dividends, rents, royalties or returns), income from the insurance or reinsurance of risks, income from the factoring of trade accounts receivable, or profits from the disposition of investment property.

Subsection 95(2) generally deems a business to be a business other than an active business if the business involves the sale of property to or from non-arm's length persons (subject to certain exceptions).

Subsection 95(1) generally defines non-qualifying business as a business carried on by the FA through a permanent establishment in a country with which Canada does not have a tax treaty, tax information exchange agreement.

In the authors' view, where a foreign affiliate carries on an active business and holds Native Utility Tokens, including Payment Tokens, for the principal purpose of using those tokens as capital to fund business operations, gains realized on the disposition of those tokens would reasonably constitute capital gains from the disposition of "excluded property" and thus would not be included under paragraph B of the definition of FAPI.

For example, an FA that raised its capital through an ICO holds its capital at first instance as tokens. Provided that the FA carries on an active business, and that the business in fact raised its capital in token markets instead of fiat markets for the purpose of accessing capital and not for the purpose of acquiring tokens for speculative reasons, then the business at first instance would hold those tokens as capital for the principal purpose of earning income from an active business. Capital of an active business is, by definition, held by a business for the principal purpose of earning income from that active business. There is no requirement in the Act that a business hold its capital in fiat currency, nor is there any requirement that a business have a business purpose for holding its capital in a form other than fiat currency. Particularly, there is no requirement that a business that receives its capital in a particular form convert it into another form unless they have a good business reason for not doing so. If a US FA raises funds through a capital raise denominated in Euros, is the US FA presumed to hold those Euros for purposes other than for the purpose of earning income from an active business? Does the US FA need a business purpose to not convert its Euros into USD? Arguably not, as it raised the Euros for the purpose of accessing capital in Euro markets and did so for the purpose of acquiring capital to earn income from its active business.

The authors see no reason why an FA that raises its funds in tokens through an ICO to access token markets should be treated any differently.

Moreover, if it is insisted that an FA needs to have additional business purposes to continue to hold its raised capital in tokens, there are many. First, such businesses will generally fund many of their expenses in tokens. Second, the token ecosystem is supported by, and engenders itself to, participants who are committed to the token ecosystem in its entirety – including holding capital in the form raised. If the business is not willing to hold its capital in the form raised, this causes investors to lose confidence in the business' commitment to and belief in the ecosystem in which it operates. Third, holding capital in tokens allows the business to provide its public wallet address to investors who can see all of the transactions carried on by the business, and the balance in the wallet at any given time. This financial visibility provides investors with vastly more accurate, secure and up to date financial disclosure than the business could provide through audited financial statements of a bank account. Fourth, token businesses are often global in nature, as are their expenses. To convert their token capital into any particular fiat currency arguably entails more speculation on the part of the business than continuing to hold their capital in the form received – which is easily convertible into whatever fiat currency is needed at any time.

8. Conclusion

This paper is not exhaustive of all the issues that may arise in the taxation of tokens, nor the considerations involved in addressing the issues discussed. However, it is our humble attempt to provide a framework to the tax community that will hopefully be found useful, and in doing so further the ability of the Canadian economy to absorb and adopt the benefits offered by the token economy. The authors have been active in

advising clients in the token economy and have enjoyed every minute in the process, and hope others find the same satisfaction.

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- ¹⁹ Nakamoto, supra note 3.
- ²⁰ Ibid.
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- ⁶¹ IAS 36 provides that at the end of each reporting period, an entity is required to assess whether there is any indication that its carrying amount may be higher than its recoverable amount. If there is an indication that an asset may be impaired, then the asset’s recoverable amount must be calculated pursuant to IAS 36.9.
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- ⁶⁴ *Ibid.*
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- ⁶⁶ *Ibid.*, at 17.
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- ⁷⁰ IFRS 13, Appendix A, defines “principal market”, to mean the market with the greatest volume and level of activity for the asset or liability.
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- ⁸⁸ Liedel, *supra* note 75, at 114.
- ⁸⁹ Bill C-31, An Act to Implement Certain Provisions of the Budget Tabled in Parliament on February 11, 2014 and Other Measures, assented to June 19, 2014 (www.parl.ca/DocumentViewer/en/41-2/bill/C-31/royal-assent/page-347#38).
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