2023 National Public Administration Case Competition

Preparing for the Future: Modernizing Transactions Through A Central Bank Digital Currency

Robert P. Shepherd, Ron Morrow, Toby Fyfe, and Keita Hashimoto

CAPPA • ACPAP

IPAC The Institute of Public Administration of Canada

IAPC L'Institut d'administration publique du Canada

Carleton University

EY

iRPP

Preparing for the Future:
Modernizing Transactions Through a Central Bank Digital Currency

AVOIDING BUDGET SURPRISES

In preparation for the spring conference on the economy between the federal and provincial/territorial finance ministers and the upcoming federal budget, the federal finance minister asked to be briefed on any major issues noted in the fall budgetary consultations by her senior management team at Finance Canada early in the new year. In particular, the minister wanted to be sure there were no surprises on the horizon with any of the initiatives being planned by the federal government.

As it turns out, the finance minister learned in the briefing that several issues were looming in the economy that would likely cause the government some angst. Significant among these was pent up post-COVID retail demand among consumers, which is driving up inflation resulting in dramatic increases in interest rates by the Bank of Canada. Food, housing, consumer goods, and many services are costing a lot more and ministers are hearing the concerns of Canadians loudly and clearly. In addition to these demand issues, crumbling supply chains and various geo-political factors such as the war in Ukraine are also having major effects on domestic prices, especially on the cost of fuel and shipping. Although difficult to control or even influence, the finance minister knows very well that provincial/territorial finance ministers will want some answers regarding how the federal government should be responding as economic indicators are not showing signs of improvement and will likely get worse through the winter months.

The minister also heard that many Canadian firms were experiencing greater competition in international markets for goods and services. This means that those who want such goods and services need the ability to transact more efficiently, and traditional currencies dependent on conventional transactional platforms are at a disadvantage. As such, multinational companies such as Amazon, Google and Facebook are finding innovative ways of facilitating various transactions across international borders and within domestic economies at a much faster pace and in ways that are quickly supplanting traditional currencies issued by central banks.

As a result, several CEOs representing large domestic companies are asking federal finance officials for help to improve the way transactions are carried out, because in the short term, many said that there is every possibility that digital currencies will be needed to conduct their business. In their view, such a shift in the way digital transactions is carried out compelled some action on the part of the federal government to announce in the budget that it would be looking into a "central bank digital currency" (CBDC). However, little progress was apparent on implementing this measure (although studies have

Budget 2022 announces the government's intention to launch a financial sector legislative review focused on the digitalization of money and maintaining financial sector stability and security. The first phase of the review will be directed at digital currencies, including crypto-currencies and stablecoins.

Budget 2022 also proposes $17.7 million over five years, starting in 2022-23, to the Department of Finance to lead the review. Budget 2022, p.214

been underway by the Bank of Canada since 2010), which has further pushed companies to consider market solutions to support potential transactions.

In addition to demands from retailers, manufacturers and even citizens for a more efficient transaction system, the minister learned that private sector digital currencies, assets and cryptocurrencies have been used to avoid global sanctions and fund illegal activities. For example, digital assets and the several private exchanges trading them provide the opportunity for criminal organizations to launder their proceeds. Proceeds from money laundering have been rising exponentially in Canada since 2017. In addition, crypto and some digital currencies are behind the facilitation of ransomware, demanding from victims that such currencies be used rather than traditional central bank currencies that can be more easily traced. Digital currencies are the vehicle of choice for narcotics and human trafficking, and the financing of terrorism. They also provide the means to skirt laws imposed by national governments to comply with sanctions or pay taxes.

In the short term, however, it is apparent to the minister that time is limited in moving on this file. Several foreign jurisdictions are moving up their plans for a CBDC, but more importantly, private sector actors are showing that they are more than willing to act when governments are not. Two new digital currencies have been announced recently that has worried central bank officials, because the take-up by some companies and a growing number of consumers is apparent. The first such currency, "Diem" (formerly Libra) originally conceived by Facebook now launched by Silvergate Bank, is a digital currency aimed at the consumer market with the idea that given the company's reach in the world, transactions could be made over the platform or support payments to family members in other countries much more quickly and with fewer steps in the transaction process than conventional currency systems. The second currency making a splash is being piloted by Amazon and Walmart, called "Hydra." In fact, both companies have been investing heavily in digital currency and in blockchain experts. Such currencies fill a demand in the market: they can be used by large and small companies to facilitate transactions for goods and services across international borders faster and cheaper than can be achieved by conventional currencies. The combination of such digital currencies, assuming a significant number of users move to use them, could mean a dramatic loss of financial sovereignty for the country.

At the end of the briefing, the minister asked her officials to lay out the basics of a CBDC and the rationale to embrace, including its features, risks and opportunities, and what was being done in other jurisdictions as appended in the next section. Ultimately, she wants to convey the pros and cons for implementing a CBDC to her cabinet colleagues in a way that makes sense and drives home the urgency for further investigation into implementation so as not to place Canada in a defensive position relative to other jurisdictions. A significant part of this briefing note was provided very quickly, which led the minister to demand answers to even more difficult questions of implementation should the cabinet decide to do so. Ultimately, the minister is looking for advice from even more actors on the costs and benefits of a CBDC, and her officials promised to open up consultations if given the green light. The minister heard arguments that it is time to move on this file, and to figure out how best to implement a CBDC, and in a way that brings along the provinces and territories, commercial banks, regulators, citizen and advocacy groups, vulnerable populations and others as they will most certainly want to convey their thoughts on what will amount to significant shifts in the way our financial system operates.

THE MINISTER'S BRIEFING NOTE: INFORMING THE USE OF CBDCs

The following provides a general understanding of CBDCs as these relate to other digital currencies. The aim of this briefing is to provide a basis upon which a policy implementation discussion could take place. It would be the aim of a subsequent briefing to the Minister of Finance and her officials about an implementation plan that would attract a much wider array of actors. This first briefing is divided into three main parts: rationale and scenarios for implementing a CBDC; comparison of activities in other jurisdictions on implementing a CBDC; and, the risks for moving on this file or not acting at all.

1. RATIONALE AND MOTIVATIONS FOR IMPLEMENTING A CBDC

Current Paradigm

Money held by Canadians generally takes two forms: funds held in bank accounts (the dominant form of money); and banknotes. To be clear, broader financial assets such as bonds, GICs and the like are not usually considered when thinking about a CBDC as these are vehicles for holding money, not exchanging it usually. The vast majority of payments or transactions, whether by debit, credit, direct transfer or cheque, involve the transfer of funds between the payer's bank or other financial institution and the receiver's institution. These transfers are facilitated by national payment systems, the hardware and software that allow any financial institution to transfer funds to another. In Canada, these systems settle approximately 30 million transactions valued at more than $500 billion every business day.

There are a number of governmental institutions that support Canadians' trust in this current paradigm. Federal and provincial regulators supervise financial institutions (e.g., at the federal level, the Superintendent of Financial Institutions) to ensure risks are well managed, and they provide deposit insurance to protect depositors' funds. The Bank of Canada acts as the lender of last resort and stands ready to lend funds to solvent financial institutions to ensure that they can meet the payment demands they face. The Bank also supervises national payment systems to ensure that they are sound and resilient. Finally, there are federal and provincial agencies dedicated to protecting consumers rights and interests when dealing with financial institutions (e.g., Financial Consumer Agency of Canada).

The use of cash is an old and simple payment technology. Cash holds a relatively stable value and it is widely accepted for payment. Additionally, cash is universally accessible: anyone can use it, including people who do not hold bank accounts. Consequently, cash is very important to those who may face challenges accessing alternative payment methods, such as those experiencing homelessness and those living in remote communities.

Cash is also resilient: it works when computer systems go down or during a power failure. It is private: one can buy everyday goods and services without revealing one's identity or details about one's personal or financial information. Cash preserves an element of competition in the financial system by providing an inexpensive and reliable alternative to credit and debit cards.

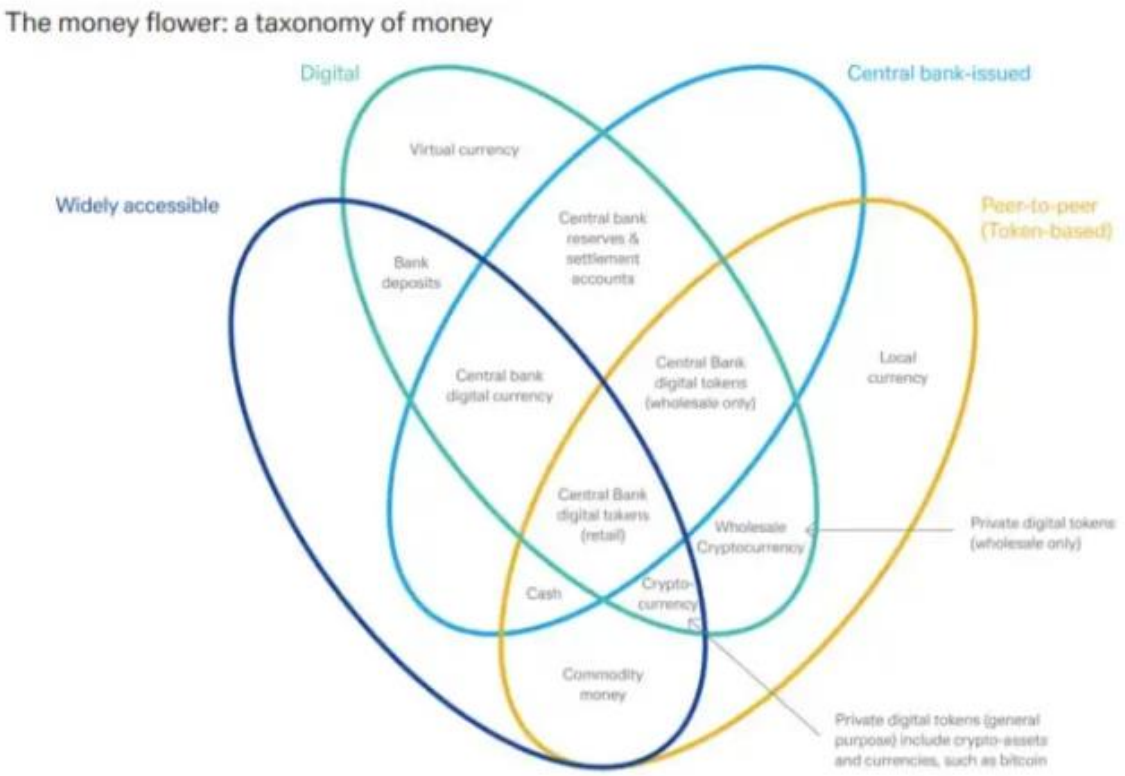
All this being said, however, cash also has its limitations. It is more suitable for relatively low-value payments and cannot be used for remote or online transactions. Canadians are generally well-served by the current paradigm especially as the Canadian dollar is widely recognized as a

well managed currency. Canadians have access to a wide range of safe, low-cost payment options that are broadly accepted across the country. All of this aside, as day-to-day life becomes more digital, the way Canadians and businesses operate everyday is changing rapidly.

New Paradigms are Emerging

Over the past several years, cryptocurrencies have gained in popular usage as potential challengers to the current paradigm. Digital currencies can be grouped into three broad categories: i) conventional cryptocurrencies (e.g., Bitcoin, Ethereum); ii) stablecoins (e.g., Tether or USDC which are tied to the US dollar); and iii) a central bank digital currency, which is a digital dollar, issued and supported by the central government and its central bank, which only exists in pilot form in only a few jurisdictions.

The various forms of currencies can be captured by the following graphic. It shows four key distinguishing elements that capture the differences between various forms of currency. Currencies can be universally accessible such as cash or commodity money (e.g., precious metal coins). Currencies can be digital (e.g., Pokecoin) or funds held electronically such as bank deposits. Funds can be central bank issued, such as a CBDC, and currencies/funds can be distinguished as being managed by a peer-to-peer platform such as a local currency (Bristol Pounds), a wholesale cryptocurrency (e.g., Utility Settlement coins), or a retail central bank cryptocurrency (e.g., work between Bank of Canada and other central banks) (See BIS, 2021; Bech & Garratt, 2017).



Conventional cryptocurrencies such as Bitcoin and similar digital assets were introduced with the hopes of becoming the money of the future, as well as vehicles of financial investment. These currencies operate on the premise that coins can be exchanged peer-to-peer using blockchain technology (i.e., a public distributed ledger in which digital currencies are recorded in chronological order and transactions are stored in containers called blocks each with their own nonce or identifier as well as their own hash or value) without the need for intermediaries such as banks or governments to validate the transaction. That has not happened, nor is it likely. Transacting in cryptocurrencies such as Bitcoin is expensive, and their purchasing power is unstable because of their underlying design. These currencies are highly speculative, and there is no regulatory regime governing their management. There is usually a designated cap on the number of coins, and when demand exceeds supply, markets will add value accordingly. Some cryptocurrencies such as Bitcoin limit the number of coins available making them an investment opportunity, while others such as Dogecoin flood the market thereby limiting their value but increasing their appeal as a standard currency.

Hashrate is an important component in keeping Bitcoin safe. Hashrate shows how many computations the hash algorithm can process per second. The higher the hash rate, the more secure the Bitcoin network is against potential network attacks. The more hashes that can be processed, the higher the possibility for miners to get new Bitcoin rewards.

There are three ways to acquire cryptocurrency: purchasing coins on the market; accepting coins in exchange for goods and services; and mining new coins. An important policy consideration is that mining (or the ability to create new coins) could fall outside the control of governments making regulation difficult. That said, because mining requires sophisticated computing equipment capable of multiple complex calculations per second, duplicating or hacking the currency is difficult but not impossible to do. This is important because governmental regulations can influence the value of cryptocurrencies. In the US, for example, many such currencies are considered to be a capital asset, because they can be converted into cash. In China, mining Bitcoin or other currencies was banned, which caused the value of many cryptocurrencies to drop rapidly. Finding common ground between central banks on regulating such currencies would be a critical policy element.

Despite different regulations regarding the use of cryptocurrency, their safety and soundness do not always involve oversight from government institutions depending on the jurisdiction in question. Moreover, conventional cryptocurrencies have no intrinsic value. Holding or transacting them relies on private sector infrastructure which has proven itself, in a number of well publicized instances, not to be resilient to theft by cyber criminals.

In contrast, “stablecoins” are an innovation on conventional cryptocurrencies and are designed to address some of the shortcomings of conventional cryptocurrencies. In particular, stablecoins are designed to maintain a stable value in terms of a currency or commodity. In most cases, they are backed, either fully or in part, by holdings of safe, liquid financial assets such as currency deposits, treasury bills, or government bonds. Compared with earlier forms of cryptocurrencies, stablecoins have better prospects for widespread adoption and, correspondingly, greater potential to further transform the world of money and payments. Stablecoins face several of the same risks as pure

cryptocurrencies (e.g., reliance on private infrastructure that is subject to theft from cyber criminals). In addition, stablecoins rely on users' trust that the assets backing the stablecoin are sufficient to cover withdrawals. If users perceive that the assets are insufficient, users may look to 'run' and withdraw funds *en masse* from the stablecoin scheme. Runs on stablecoins are fairly common (e.g., Terra/Luna collapse after losing US$45 billion in May 2022) (Sandor, 2022).

A central bank digital currency (CBDC) can be conceptualized as a digital version of a banknote. There are two types of CBDC: "wholesale" and "retail." A wholesale CBDC is intended for financial institutions that hold reserve deposits with a central bank such as the Bank of Canada. These are used to improve payments and securities settlement efficiency, and to reduce credit and liquidity risks for counterparties such as governments, national banks, national monetary authorities and investment banks that act as guarantors for loans and indemnities. This type of CBDC replaces or complements reserves at the central bank with a restricted-access digital token. Such tokens act as a bearer asset, which can be transferred without intermediaries. It is the most popular option among central banks, because it can make existing wholesale financial systems faster, inexpensive and safer (Rodeck and Adams, 2022).

> *CBDC would function similarly to actual cash. "If I gave you CBDC, it's as if I'm handing you physical money, like a $100 bill. You'd have that money in your account and, it's yours. I couldn't take it back." This is a key difference from other electronic payments, such as ACH transfers or PayPal. "If I send you money through PayPal, it's just a promise that money is coming. Your balance may show the funds, but money hasn't actually moved between banks yet." Jim Cunha, Forbes*

A retail CBDC is one that can be issued to the general public and has the features of being anonymous, traceable, and available 24 hours/day and could conceivably pay some rate of interest. This form of CBDC has the ability to promote financial inclusion by accelerating the shift to a cashless society and to reduce the need to print cash with its various handling costs. A retail CBDC could be controlled by the central bank through its monetary policy. It would have to be considered legal tender and a safe store of value by citizens, business organizations and governmental agencies. It could be distributed at 1:1 parity with the relevant fiat currency by the central bank and is intended to be seamlessly and freely convertible against commercial bank money and cash. Like cash, it may not be conceived or necessary to have a bank account to use a retail CBDC, but transaction costs would have to be lower than current central bank currencies.

The differences between a CBDC and regular currency such as the Canadian dollar is shown in Table 1.

In October 2020, a report was prepared by a joint study group established by the Bank of Canada, European Central Bank, Bank of Japan, Sveriges Riksbank, Swiss National Bank, Bank of England, Board of Governors of the U.S. Federal Reserve, and Bank for International Settlements. It identifies three basic principles for the use of CBDCs: (1) they do not undermine monetary and financial stability; (2) they coexist with and complement public and private money; and (3) they promote innovation and efficiency in domestic and international transactions.

Table 1: Differences between Wholesale and Retail CBDCs

		Medium	Issuing Entity
Wholesale	Central Bank Deposit	Digital	Central Bank
	Wholesale CBDC	Digital	Central Bank
Retail	Bank Deposit	Digital	Commercial Bank
	Cash	Physical	Central Bank
	Retail CBDC	Digital	Central Bank

Source: Bank of Japan (https://www.fsa.go.jp/singi/digital/siryou/20211101/sankou.pdf)

These different variations on digital and cryptocurrencies are complex. There are hundreds of cryptocurrencies on the market today. This complicates consideration of a central bank digital currency, most notably because there are already many players in the market. What would motivate consideration and use for a central bank digital currency?

Motivations for Considering a CBDC

There may be several scenarios for considering the implementation of a CBDC. First, should cash usage decline to a point where it is no longer widely used or accepted, several policy concerns could arise. In particular, Canadians without adequate access to banking services such as vulnerable populations or those residing in remote communities, would find it even more difficult to participate fully in the economy. This could motivate the creation of a Canadian dollar digital currency (i.e., a C$ CBDC or private sector digital currency alternative). Ideally it could provide an inexpensive and simple means to transfer funds and facilitate offline transactions such as the digital replacement of cash through a reloadable cash card for example.

Second, there may be a dramatic increase in one or more alternative digital currencies, either public (e.g., a US$ CBDC) or private (e.g., a US$ stablecoin such as Tether), that becomes widely adopted in Canada and that displaces the use of the Canadian dollar. In this scenario, the alternative digital currency would be denominated in a unit of account different from the Canadian dollar and could use settlement systems out of reach for Canadian regulators. This scenario could threaten Canada's monetary sovereignty and the Bank of Canada's ability to set monetary policy. It could also threaten the Canadian dollar as the unit of account: domestic prices could be quoted in something other than Canadian dollars. The policy response to this scenario could be to develop a Canadian dollar digital currency (e.g., a CBDC issued by the Bank of Canada) to compete with the non-Canadian dollar digital currencies.

A third scenario for a digital currency could be tied to the need to reduce the cost of financial services and improve the overall efficiency of the financial system. For example, Canadians who have family members in other countries often face high costs and long delays in sending them money using the conventional financial system. Businesses face similar drawbacks in paying for goods and services they purchase from outside Canada. These frictions and costs could motivate financial technology (Fintech) companies such as Wise, Remitly or Stellar to aspire to make it

easier and cheaper to move funds across borders, again potentially displacing use of the Canadian dollar.

A fourth scenario could be one where there is a need to ensure that Canadians have access to a low-cost digital payment option. Canadians are well served by several widely accepted instruments such as credit and debit cards. However, these instruments' ubiquity and ease of use come at the expense of high fees for retailers, which they eventually pass on to customers in a regressive manner. Cryptocurrencies and stablecoins have also been less reliable in recent years (Lecompte, 2023). A low-cost Canadian dollar digital payment option could address this issue by providing a low-cost payment option for merchants and serve as an alternative to regulating the fees that card providers charge to merchants.

Any one or a combination of these scenarios could be possible within the Canadian context, which has prompted a long-time examination of this issue as announced in the 2022 federal budget.

2. TRENDS IN OTHER JURISDICTIONS

Emerging economies are more advanced than developed countries in terms of research and development and formal issuance of CBDCs. For example, China began researching the digital Chinese Yuan (e-CNY) in 2014. In a report issued by the People's Bank of China in July 2021, the objectives of offering e-CNY include contributing to financial inclusion, achieving fair competition, efficiency and security in retail operations, and improving cross-border payments. e-CNY discussions have led to a growing consensus among some countries including Japan, Canada, US and others that a CBDC could be issued in response to China's advancements. Regional CBDCs are also being considered in locations such as the Caribbean in order to better facilitate trade relationships. Nigeria's eNaira is also showing positive signs of taking off in that country. In all, over 80 countries worldwide, mostly emerging economies, are investing in at least studying the potential implementation of CBDCs according to the Atlantic Council.

In developed countries, discussions are underway in Europe and North America, but the timing of issuance has not yet been determined. The European Central Bank (ECB) released a report in October 2020 in response to Silvergate Bank's Diem and China's e-CNY. The ECB expressed concern that stablecoins offered by private companies could threaten financial autonomy and worried about maintaining its monetary sovereignty. In July 2021, the ECB Policy Board decided to launch the research phase of the Digital Euro project. The U.S. has also launched a CBDC study in response to plans to issue Diem and e-CNY and published a report in January 2022 urging its government to consider issuing a CBDC. The Bank of Japan conducted a joint research project (Project Stella) with the ECB from 2016 to 2020 also exploring the various issues surrounding the implementation and use of a CBDC. Table 2 provides a summary of research in other jurisdictions regarding a CBDC, as well as potential plans for issuing one.

Table 2: International Plans for Issuing a CBDC

	China	Europe	United States	Japan
Name of CBDC	e-CNY	Digital Euro	U.S. CBDC	Digital Yen
Year of publication of the report	2019	2020	2022	2020
Status quo	Pilot experiment underway (The general public also participates.)	Under investigation phase	Public comments are being analyzed.	Proof of concept in progress (Systematic experimental environment)
Issuance	✓ (Timing of issuance has not yet been determined)	- (Scheduled to be issued in October 2023)	- (No decision planned)	- (Scheduled to be issued in 2026)

Source: S. Miyagawa and R. Ushioda (2022), "Where Retail CBDC is Now: Initiatives in China, Europe, the U.S., and Japan" *Gekkan Kinyu Journal*, 63 (7), 20-23.

Despite some significant support for the design and implementation of a CBDC, not all jurisdictions agree. For example, Denmark is of the view that its current financial system is adequate to the task, offering a safe, secure and effective payments infrastructure and digital currency in the form of bank deposits. The central bank believes that its role would be altered fundamentally, making it a direct competitor with commercial banks leading to financial instability for the country. In its view, such risks of bank runs, for example, could make the shift to a CBDC untenable, and highly unnecessary (Denmark National Bank, 2017).

The design of CBDCs is an important consideration by jurisdiction, because each country has a different approach to monetary policy and addressing local social conditions such as acceptance of such a currency among citizens and financial institutions. For example, the introduction of a CBDC could contribute to financial inclusion in the United States. It is estimated that 5% of all U.S. households do not have bank accounts due to high account maintenance fees. Since it is reasonable to assume zero costs for the distribution and payment of a CBDC, the introduction of a CBDC is intended to mimic that of current cash transactions. By contrast, Japan has nearly 1,000 regional banks and other small and medium-sized financial institutions that offer several electronic money services with a high degree of public acceptance. Therefore, the introduction of a CBDC may cause an outflow of deposits from these financial institutions unless they are selected as intermediaries for a CBDC. In essence, there are many factors that would have to be carefully considered by each jurisdiction for the design and introduction of a CBDC with concomitant concerns for its acceptance in the international marketplace.

RISKS FOR IMPLEMENTING A CBDC

The creation of a central bank digital currency (CBDC), a regulated national digital currency, could protect investors, as demonstrated by the collapse of FTX in November 2022. Although the issue over whether this crisis was the result of scamming or lack of appropriate oversight is under investigation, it would appear that the virtual economy will continue to grow and develop, and that the creation of a national regulated digital currency could create the framework to ensure that theft and fraud are minimized (as with any financial activity).

More generally, if well-designed and appropriately regulated, a CBDC could support faster, more efficient, and more inclusive payments options. Moreover, the transition to broader use of digital currency as a means of payment could occur rapidly due to network effects or relationships between stablecoins and existing user bases or platforms.

A Bank of Canada CBDC could achieve a more effective payment system ensuring that households and businesses still have access to a safe currency as the use of cash declines. It could establish a back-up system for the existing payments infrastructure. It could ensure monetary sovereignty against private digital currencies, such as the Diem currency that Facebook and its partners planned to launch, that could have affected the Bank of Canada's ability to stabilize prices. Despite the currency's sale to Silvergate Capital Corporation in 2022, the attempt signals a move by the private sector to fill a gap left open by the hesitancy of the public sector in many jurisdictions including Canada (BBC, 2022).

The creation of a Bank of Canada digital currency could also alter the Bank's role in the financial system and potentially make it a competitor to commercial banks, leading to risks of financial instability (see National Bank of Denmark, 2017). Similarly, mandate changes to the central bank are typically taken with great care, and any changes would want to ensure that financial stability is maintained. In addition, if retail CBDCs are introduced, money could shift from bank deposits to CBDCs meaning commercial banks may no longer be able to engage in credit creation through lending using deposits as the source of funds and could instead lend within the limits of their capital. It could force a significant change in the existing business model, which could involve a major policy change in the way our financial system operates. On the other hand, if restrictions are placed on the amount of CBDC purchases, the convenience of a CBDC could be compromised, and the benefits of introducing CBDC might diminish.

Cyber-resilience and security would have to be top priorities for CBDC payments infrastructure. However, a key feature safeguarding the value and stability of the currency is that it could be supported by the central bank according to a 1:1 conversion ratio (i.e., a coin or digital note would only be created or destroyed if an equivalent amount of cash or reserves were created or destroyed at the same time). A CBDC could ultimately be decentralized in terms of its transactions (e.g., through a bank), but centralized in terms of its supply (e.g., through a central bank) which aligns with the management of the current model. Unlike a stablecoin, a CBDC might not be subject to runs as the central bank could ensure sufficient resources to repay holders should there be a shortfall of cash.

THE CHALLENGE

Having read this detailed briefing on the various forms of digital currencies, the minister is concerned that there are various emerging market jurisdictions particularly in the Caribbean and various parts of Africa that are in the process of rolling out a CBDC in addition to that of China's "e-Yuan" and the Bahamas' "sand dollar." Canada risks losing its competitive edge against other developed economies in dealing with markets should there not be a "modern" way of completing transactions that are efficient. In addition, the rise of digital currencies such as "Diem" and "Hydra" are major corporate players that can pose some challenges to the sovereignty of state currencies. Equally important, many everyday transactions dominated by Apple Pay, Google Pay, Alipay and other digital wallet systems and transaction applications place the management of transactions with foreign owned companies rather than the central bank. A CBDC would give the central bank a much stronger role to play in monitoring transactions and governing Canada's currency system.

The minister realizes that the entire issue of implementing a CBDC is a "sleeper" with Canadians as many do not understand its significance. The fact that the 2022 federal Budget places the announcement of investigating a CBDC on the back pages is a testament to that point. That being said, the minister understands that time is not a luxury for Canada to be seen on the international playing field before others take up the space leading companies and individual Canadians to place their trust in other solutions.

There are a number of challenges facing the minister at this point. First, in order for this issue to get an airing with her colleagues means conveying that there may be some urgency in the matter. This means providing evidence that demonstrates where Canada's current currency arrangements are failing companies and individuals as well as showing the economic impact of diminishing regulatory control over digital transactions (i.e., lower financial stability) as these emanate from economic activity and criminal infractions. Second, more companies and Canadians may be turning to digital currencies to store their wealth rather than a currency tethered to the Canadian dollar. This could signal a decline of trust in the Canadian dollar and its financial institutions leading to (again) lower financial stability. Although not a major problem now, such observations are already being seen in other jurisdictions. The challenge, therefore, is to stem a potential exodus of cash. Third, and not insignificantly, maintaining coherence in Canada's monetary system would mean a great deal of investment in working with provinces, territories, regulators, commercial banks and lending institutions, advocacy groups, and investment houses in order to determine the best course for implementing a CBDC. Some colleagues already overburdened with more pressing issues may not find adding another file appealing. Finally, time is quickly running out for demonstrating progress on the Budget 2022 commitments. With several files on the go with the Bank of Canada, including stemming inflation, there is mounting pressure on Cabinet to demonstrate the value of a CBDC, including the potential for programming negative rates thereby protecting investments until inflation abates.

In sum, with pressure steadily mounting from several quarters to move on this file for different reasons, the minister knows that innovative solutions such as implementing a CBDC would show Canadians and companies that they have options to better their economic futures at a minimum. The challenge is, therefore, to determine what the pros and cons are of moving forward with

developing a made-in-Canada strategy for developing a CBDC (wholesale and/or retail), while also determining the implications for acting on implementing it.

YOUR TASK

Yours is one of 11 internal tiger teams working on investigating how the Government of Canada should move forward on developing a central bank digital currency. Each of the teams is working independently on different aspects of the issue given that there are several perspectives and questions at play. As one of those teams, you are expected to give a briefing to a blue-ribbon panel of experts in the area of finance and banking appointed by the Minister of Finance. The panel comprises both internal senior members of the federal Public Service and arms-length agencies and external experts in various aspects of blockchain and digital currencies associated with provincial/territorial jurisdictions, associations, regulators and other organizations. The job of the panel is to take the recommendations from the tiger teams and formulate a report that would be submitted up the line to the Deputy Minister of Finance and then onto the Minister of Finance. As such, the most compelling arguments would be represented in the final report.

Each team has been given the choice of perspective to convey to the panel, including recommendations from that perspective. Therefore, your first task is to determine which perspective your team will convey: Bank of Canada; Office of the Superintendent of Financial Institutions (i.e., regulatory perspective); commercial banks; provincial ministries of finance (all or selected); Consumers' Association of Canada (or similar advocacy or rights groups); RCMP (i.e., criminal activities investigations perspective); or organizations representing vulnerable populations (e.g., homeless without bank accounts).

Once you have selected a perspective, the panel is looking for clear advice on the pros and cons of developing a CBDC and advice on how best to go about implementing such a currency into the Canadian financial system should the government decide to proceed. The panel has requested that the tiger teams address the following questions to guide their work.

1. Is the perspective you are conveying supportive of moving forward with the design and implementation of a retail CBDC? Or, do you have an alternative idea?
2. What are the compelling considerations to proceed with developing and implementing a CBDC (or another idea) based on the perspective selected? Considerations can take many forms: structural (e.g., monetary system design); regulatory; security (e.g., secure medium, secure system); acceptance and support (e.g., provincial/territorial participation and commitment, businesses and organizations, citizens); international considerations (e.g., OECD, IMF); coordinative considerations (e.g., with other central banks); machinery of government considerations (e.g., who is responsible for what); vulnerable populations considerations (e.g., effects on homeless, those without bank accounts, remote communities); economic (e.g., reducing transaction costs, improving efficiencies). Not all of these need to be addressed depending on the perspective your team selects, but it is up to you to determine which considerations are most pertinent to your argument.

3. Based on your analysis in question 2, outline options and recommendations for a potential implementation strategy. The panel is not expecting a comprehensive implementation plan that takes into account all aspects of implementation (e.g., regulatory, trade, consumers, infrastructure such as a payments system, security, technological, coordination, etc.). However, the panel will want to understand the importance you are assigning to particular aspects of implementation relative to others.
4. Given the implementation plan that you have identified, are there any notable risks that pose the greatest challenges for your plan? How do you propose to mitigate these risks?
5. What is your recommendation for a communications strategy for the groups or organizations with which your perspective is concerned? What are the key messages you must convey in order to ensure ongoing support and momentum?
6. Finally, are there any landmines or surprises you wish to identify for the panel that might influence the arguments that other perspectives might convey? That is, based on the perspective you are representing, are there potential obstacles or opportunities that could arise for the minister?

The panel has requested a fairly comprehensive PowerPoint presentation that does not exceed 15 slides (annexes are permitted over and above this number). If you wish to add notes that are embedded in each of the slides, this is also acceptable as the panel will be partially assigning value to your presentation.

Because the panel has a hard deadline to submit a final report to the minister, your presentation is due by no later than 5 pm EST on Friday, February 24th.

SOURCES

Bech, Morten and Garratt, Rodney. 2017. "Central Bank Cryptocurrencies," *BIS Quarterly Review*, September.

Bank for International Settlements. 2020 (October). *Central Bank Digital Currencies: Foundational Principles and Core Features*. Available at: https://www.bis.org/publ/othp33.htm

Bank of Japan. 2020 (October). *The Bank of Japan's Approach to Central Bank Digital Currency*. Available at: https://www.boj.or.jp/en/announcements/release_2020/rel201009e.htm/

Bech, Morten and Garratt, Rodney. 2017 (September). "Central Bank Cryptocurrencies," *BIS Quarterly Review*.

BBC. 2022. "Facebook-funded cryptocurrency Diem winds down." Available at: https://www.bbc.com/news/technology-60156682

BIS. 2021. "Central Bank Digital Currencies – executive summary." Available at: Central bank digital currencies - executive summary (bis.org)

CBC Radio. 2022. "If we build the metaverse, will anybody come?" Available at: https://www.cbc.ca/radio/spark/if-we-build-the-metaverse-will-anybody-come-1.6312339/government-issued-digital-currency-could-be-the-coin-of-the-future-1.6312460

CNBC International. 2021. "Why central banks want to launch digital currencies, CNBC reports." Youtube video. Available at: Why central banks want to launch digital currencies | CNBC Reports - YouTube

Demmou, L. and Q. Sagot. 2021. "Central Bank Digital Currencies and payments: A review of domestic and international implications," *OECD Economics Department Working Papers*, No. 1655, OECD Publishing, Paris, https://doi.org/10.1787/f06c0d89-en

Diez de los Rios, Antonio and Yu Zhu. 2020. "CBDC and Monetary Sovereignty." Bank of Canada Discussion Paper. Available at: CBDC and Monetary Sovereignty - Bank of Canada

ECB. 2020 (October). *Report on a Digital Euro.* Available at: https://www.ecb.europa.eu/pub/pdf/other/Report_on_a_digital_euro~4d7268b458.en.pdf

ECB. 2022 (March). "ECB publishes report on payment preferences as part of digital Euro investigation phase." Available at: ECB publishes report on payment preferences as part of digital euro investigation phase (europa.eu)

Engert, Walter and Kim Huynh. 2022. "Cash, COVID-19 and the Prospects for a Canadian Digital Dollar." Bank of Canada Discussion Paper. Available at: Cash, COVID-19 and the Prospects for a Canadian Digital Dollar - Bank of Canada

Engert, Walter and Ben Fung. 2017. "Central Bank Digital Currency: Motivations and Implications." Bank of Canada Discussion Paper. Available at: Central Bank Digital Currency: Motivations and Implications - Bank of Canada

Federal Reserve Board. 2022 (January). *Money and Payments: The U.S. Dollar in the Age of Digital Transformation.* Available at: https://www.federalreserve.gov/publications/files/money-and-payments-20220120.pdf

Kahn, Charles and Francisco Rivadeneyra. 2020. "Security and convenience of a central bank digital currency." Bank of Canada Discussion Paper. Available at: Security and convenience of a central bank digital currency - Bank of Canada

Lane, Timothy. 2020. "Money and Payments in the Digital Age." Bank of Canada Discussion Paper. Available at: Money and Payments in the Digital Age - Bank of Canada

Lecompte, Annie. 2023. "Cryptocurrencies are in crisis, but they are not going to disappear." The Conversation. Available at: https://theconversation.com/cryptocurrencies-are-in-crisis-but-they-are-not-going-to-disappear-197777?utm_medium=email&utm_campaign=Latest%20from%20The%20Conversation%20for%20January%2018%202023&utm_content=Latest%20from%20The%20Conversation%20for%20January%2018%202023+CID_88061470314530bb6af9e4fd5c3676e8&utm_source=campaign_monitor_ca&utm_term=but%20they%20are%20not%20going%20to%20disappear

National Bank of Denmark. (2017). "Central Bank Digital Currency in Denmark?" Available at: Analysis - Central bank digital currency in Denmark.pdf (nationalbanken.dk)

Rodeck, David and Adams, Michael. 2022 (October). "Digital Currency: The Future of Your Money." Forbes Magazine. Available at: What Is Digital Currency? – Forbes Advisor

The Economist. 2021. "What is the fuss over central bank digital currencies?" Available at: https://www.economist.com/the-economist-explains/2021/02/16/what-is-the-fuss-over-central-bank-digital-currencies

US Federal Reserve. 2022 (January). "Money and Payments: The US Dollar in the Age of Digital Transformation." Available at: Money and Payments: The U.S. Dollar in the Age of Digital Transformation

Usher, Andrew and Edona Reshidi, Francisco Rivadeneyra and Scott Hendry. 2021. "The Positive Case for a CBDC." Discussion Paper by the Bank of Canada. Available at: The Positive Case for a CBDC - Bank of Canada

White House. 2022 (September). "Policy Objectives for a US Central Bank Digital Currency System." Available at: 09-2022-Policy-Objectives-US-CBDC-System.pdf

Working Group on E-CNY Research and Development of the People's Bank of China. 2021 (July). *Progress of Research & Development of E-CNY in China* (July 2021) http://www.pbc.gov.cn/en/3688110/3688172/4157443/4293696/2021071614584691871.pdf