



# The Decentralised Revolution

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**Understanding the potential of Blockchain,  
DeFi, Crypto, DAOs, NFTs and the Metaverse  
to drive innovation, creativity and new paradigms**

**Steven Moe**

Partner at Parry Field Lawyers  
and host of Seeds Podcast

You never change things by fighting the existing reality.  
To change something, build a new model  
that makes the existing model obsolete.

**Buckminster Fuller**

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## Introduction

Simply by sailing in a new direction,  
you could enlarge the world.

**Allen Curnow**

The Reserve Bank of New Zealand seems worried, and they should be.

This White Paper is a response to their recent series of issues papers which look at the future of money and is written in the light of many technological innovations occurring right now.

Similar versions of the issue papers from the Reserve Bank are being replicated across the world by other Central Banks who are asking themselves the same questions.

While this paper has been sparked as a direct response to the Reserve Bank papers it does not seek to address every point that they have raised for public consultation on CBDCs (Central Bank Digital Currency). Instead, it takes the opportunity to go to a much higher-level view to examine where we are at, and where we are going.

My great grandfather attended the first airplane trials of the Wright Brothers in 1909 and he wrote how seeing the plane fly above him felt like he was seeing into the future. In a similar way this change going on feels a lot like 100 years ago when people might have seen a motor car for the first time, wondered if it would catch on, then gone out and bought another horse.

What we are going to talk about in this White Paper has the potential to disrupt old ways like those inventions. A dubious quote attributed to Henry Ford encapsulates this concept: "If I had asked people what they wanted, they would have said faster horses."

In the same way it feels like central authorities like banks are assuming that if they come out with a CBDC then they will make their already existing horse (the banking system where they have control) run a bit faster but essentially keep the system the same. Instead, decentralised finance says we don't need intermediaries. In fact, we don't need central banks at all and it sidesteps the old infrastructure to establish a new paradigm where anyone can directly transact with anyone else.

If you spend some time thinking about this the implications are huge – how we operate in 100 years is likely to be very different to how we have operated up until now. It is no coincidence that the instability of the 2007 financial crisis spawned a new approach to finance like this that takes power out of centrally controlled institutions. We just have not thought through the logical results that could come, yet.

I think it is important to do this sort of thinking because it would be too easy to dismiss the entire decentralised revolution occurring now as being plagued by crime, dark web use, drugs, and conspiracy. But such a view would be stuck in a past we will not return to and would not show a willingness to embrace what is new and understand and grapple with the implications. By taking



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a higher-level view it is also possible to take a much longer-term perspective and see the potential.

While acknowledging that there are risks, this White Paper focusses on the potential that new ways of operating introduced by decentralised finance. It also considers the type of legal and regulatory ecosystem that will allow these innovations to have the maximum positive impact.

This White Paper will not focus in too much detail on the technical aspects of each of the Technologies in the title apart from explaining what they each are in a section on definitions. Instead, the focus is on what they could mean for the future.

The context is simple: Blockchain technology has introduced new ways of thinking about finance and allowed a new vocabulary to rise of DeFi, NFTs, Crypto, Metaverse and more. This is much more than just talking about Bitcoin. There are philosophical questions to consider about the place of central control vs decentralized control and about the nature of individuals, collective decision making and even nation state sovereignty.

Just so that the reference points which this paper is working from are grounded and it is clear what has been one origin point for this White Paper, the Reserve Bank of New Zealand (Te Pūtea Matua) has issued three issues papers for consultation at the end of 2021.

They say about this:

*“The Reserve Bank is inviting your feedback on a series of issues papers to test our thinking about how we should approach our new role as steward of the money and cash system and make sure that central bank money continues to do its job in light of significant changes affecting how New Zealanders pay, receive and save money.”*

The descriptions they offer of each paper and the links to them are as follows:

- [Future of Money – Stewardship](#) (Te Moni Anamata – Kaitiakitanga) seeks your feedback on how we should steward money and cash following a recent law change.
- [Future of Money – Central Bank Digital Currency](#) (Te Moni Anamata – Aparangi ā Te Pūtea Matua) wants your views on how we propose to explore whether a CBDC is right for Aotearoa.
- [Future of Money – Cash System](#) (Te Moni Anamata – Pūnaha) will be published in November 2021. It will explain issues facing the cash system and explore options to achieve greater efficiency and resilience.

In my view these papers are necessary but do not go far enough to consider the real impacts that are underpinning the source of concern from the RBNZ. CBDCs are being consulted on and whether they should be adopted – a narrow focus.

The answer will be yes, and it should be done quickly (though the paper says multiple times it will be a slow process with lots of consulting).

But the problem is the actual innovation and technology change underpinning why adopting a CBDC is an obvious answer is not being looked at. The foundational shifts are arguably more important than one outworking, which is the CBDCs issue. Because all of this has much wider flow on impacts that should be investigated and talked about and considered.

To be clear, the Reserve Bank should be considering all the other innovations set out in the title of this paper as well. What do they mean for its role and the role of money in the future? If it did that then maybe New Zealand could become a world leader in this area and encourage an ecosystem of innovation, rather than holding back and waiting for others around the world to make the first move.

If this were done well then new products, an ecosystem that encouraged innovation and the concentrating of global players could see a reputation develop that would see us on the world stage as a leader in this arena, rather than a follower.

Let us turn to better understanding the edges of this topic by considering the key concepts, terms, acronyms and definitions and then we can get into what we are really talking about.

## Part I: Getting Definitions Right

*It will take time for the idea of decentralised trust through computation to become a part of mainstream consciousness, and until then, the idea creates cognitive dissonance for those accustomed to centralized trust systems.*

**Andreas Antonopoulos**

The terminology and acronyms used in this area can be confusing and hinder clear understanding.

In this part we want to unpack some of the terms that are used by providing some overviews of the key concepts in less than 100 words for each.

While this may be a high-level approach it should help to give a common understanding of what we are talking about because a big hindrance to thinking of the future is being clear on what is meant.

Each of the following phrases and concepts they represent could have books written on them, but we do not want to get bogged down by the detail. Let's get into it:

<h3>Blockchain</h3> <p>Blockchain is a way to record information that makes it hard to hack or alter because the record is held across a network of computers. Think of a chain and the way the pieces connect to each other – each of those is a “block” in the chain. The blocks have transactions and new ones can be added to them. One use (of many) is to create digital money. Blockchain is not bitcoin – instead bitcoin uses blockchain technology.</p>	<h3>DeFi</h3> <p>Decentralised Finance, which refers to the fact that these new technologies that relate to finance are not controlled by one central body or group like in the past. So, it is not centralised, it is decentralised. That is, there is no one group in charge.</p>	<h3>Crypto</h3> <p>Privacy is a key feature of cryptocurrency because you do not need to disclose details like you normally do when setting up a bank account. You may be confused about why a crypto would have a particular value and go up – it may be because they relate to a particular technology project. As the project grows and the coins are used in it to power decentralised applications, the price will rise.</p>
<h3>DLT</h3> <p>Distributed Ledger Technology is basically another name for new ways of recording transactions with Blockchain as an example of a type of DLT. The 'ledger' part refers to where the records are kept of transactions. The distributed part is because it is not centralised and instead it is held across several computers.</p>	<h3>Bitcoin</h3> <p>One digital currency that started it all. It leverages blockchain to record ownership. It began on 3 January 2009. The <a href="#">original paper</a> states: “A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution.” Bitcoin are created to reward mining.</p>	<h3>Mining</h3> <p>Refers to computations done on the ledger to verify transactions. Payment can be made for mining so there is an incentive to do so. There can be large electricity costs of running the computers to solve the computations. This is becoming a common criticism of Bitcoin as it is Proof of Work (compared to Proof of Stake – see other definition below on Proof).</p>

<h2>DAOs</h2> <p>Stands for Decentralized Autonomous Organisation. Because there is no one person or entity in charge of new digital currencies a DAO may be used to help make decisions and manage a blockchain. So, the community leads through the DAO with no central figure or controller.</p>	<h2>Web 3.0</h2> <p>References the next form of internet – the best picture I have heard is that web 1.0 was the era of black and white movies (internet exists, but very basic), web 2.0 is colour TV (videos, social media) and web 3.0 is more immersive ‘virtual reality’ experiences. The biggest phrase at the moment is the ‘metaverse’ – see below.</p>	<h2>NFTs</h2> <p>‘Non-fungible Tokens’ these are assets, but not in the traditional sense – being virtual they are stored using blockchain. They are unique and one off. Often, they relate to digital art, at least right now, but they could relate to other assets. In summary, you own a token which then represents an asset.</p>
<h2>Metaverse</h2> <p>Online immersive environments where you can interact with others through augmented or virtual reality headsets. For example, log in and meet a friend across the world to play a game together and be present even if apart. Depicted in the 2018 movie “Ready Player One”.</p>	<h2>Decentralised</h2> <p>Information held across a network of nodes rather than centrally – often means activities of an organisation/initiative are decided without reference to authority of one person or people in power.</p>	<h2>Cash</h2> <p>Something our children will look at with curiosity one day and ask what that paper and metal was for.</p>
<h2>Wallet</h2> <p>A place to store digital currency these are an app you download and then you have an identifying number for each currency you hold in the wallet so you can transfer tokens in or out. A cold wallet refers to a physical device to keep crypto offline.</p>	<h2>HODL</h2> <p>A slang term used to describe ‘holding’ a cryptocurrency rather than selling it (particularly during times of high volatility).</p>	<h2>Stablecoin</h2> <p>A stablecoin has its value tied to another asset, which means it is often ‘stable’ and less volatile than other cryptos.</p>
<h2>Proof</h2> <p>Proof of Stake vs Proof of Work: Mining uses energy to fuel computations (proof of work) compared to mining power being based on % of coins held (proof of stake) which uses less energy.</p>	<h2>CBDCs</h2> <p>An acronym for Central Bank Digital Currency this is what the Reserve Bank of New Zealand is currently consulting on. They are not the only ones – countries around the world are trying to grapple with what the new technology</p>	<h2>Fiat money</h2> <p>This type of money is issued by a government, but it is not related to some underlying asset like gold. Instead, the government issues it so they control more of their economy. This is in contrast to commodity money where some value is inherent within it eg, the coin itself is silver or</p>

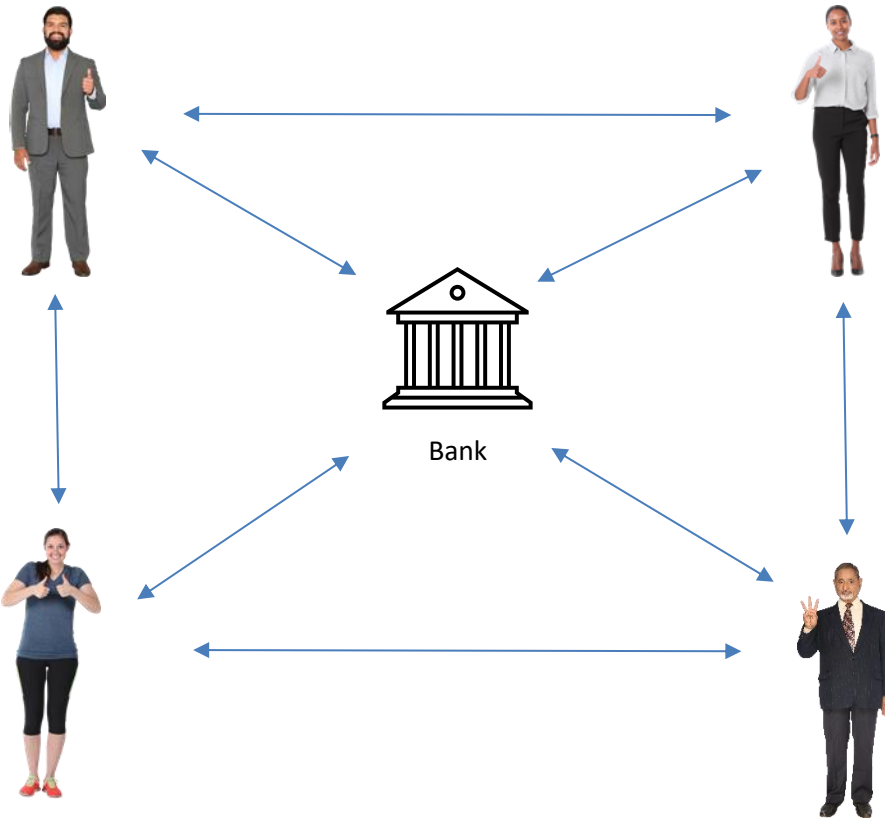
	<p>means for their role in relation to money going forward (where they are not necessarily involved in money their citizens use due to new private digital currencies that may be favoured instead).</p>	<p>gold, and representative money where the bank note represents some actual commodity. So, Fiat money depends a lot on trust.</p>
<p><b>Smart Contract</b></p> <p>A smart contract is a program on the blockchain – when certain conditions are met it runs, which means no intermediary is needed.</p>	<p><b>FUD</b></p> <p>Fear, Uncertainty, Doubt. Often leads to volatility in these sorts of markets.</p>	<p><b>AR / VR</b></p> <p>Augmented reality and virtual reality – these will have big parts to play in the Metaverse as online becomes more immersive.</p>

So how might all this look in terms of a practical example of money flows? Let's look at that on the next page.

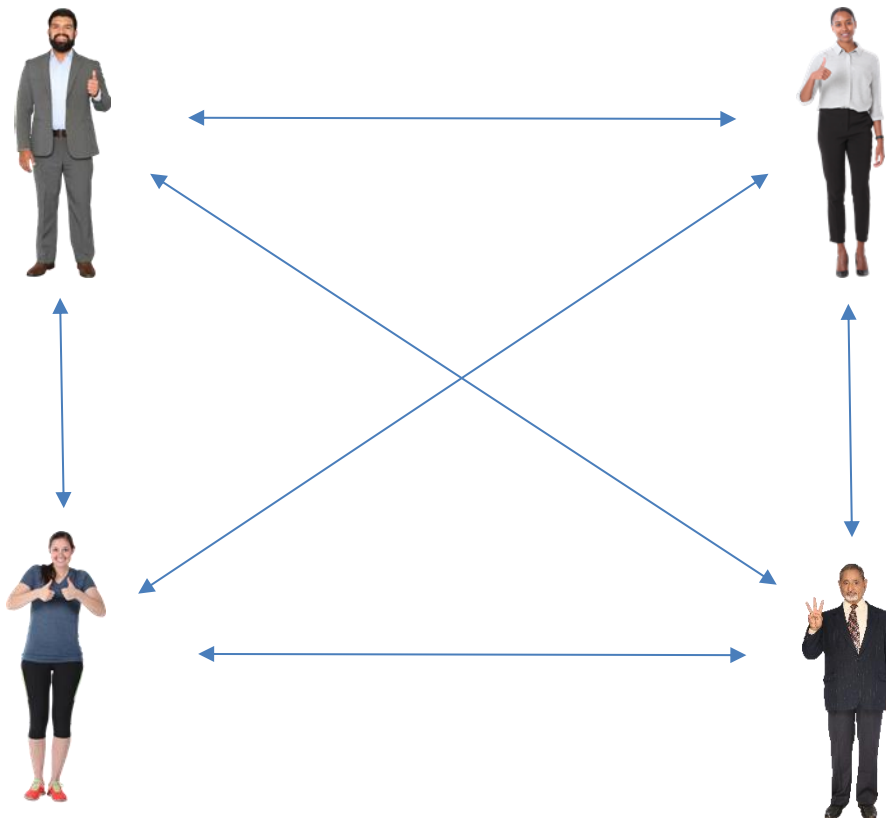


**A diagram showing central control (traditional finance) vs decentralised (DeFi).**

**Traditional centralised control** (arrows represent money flows)



**Decentralised**



## Part II: So what are we really talking about?

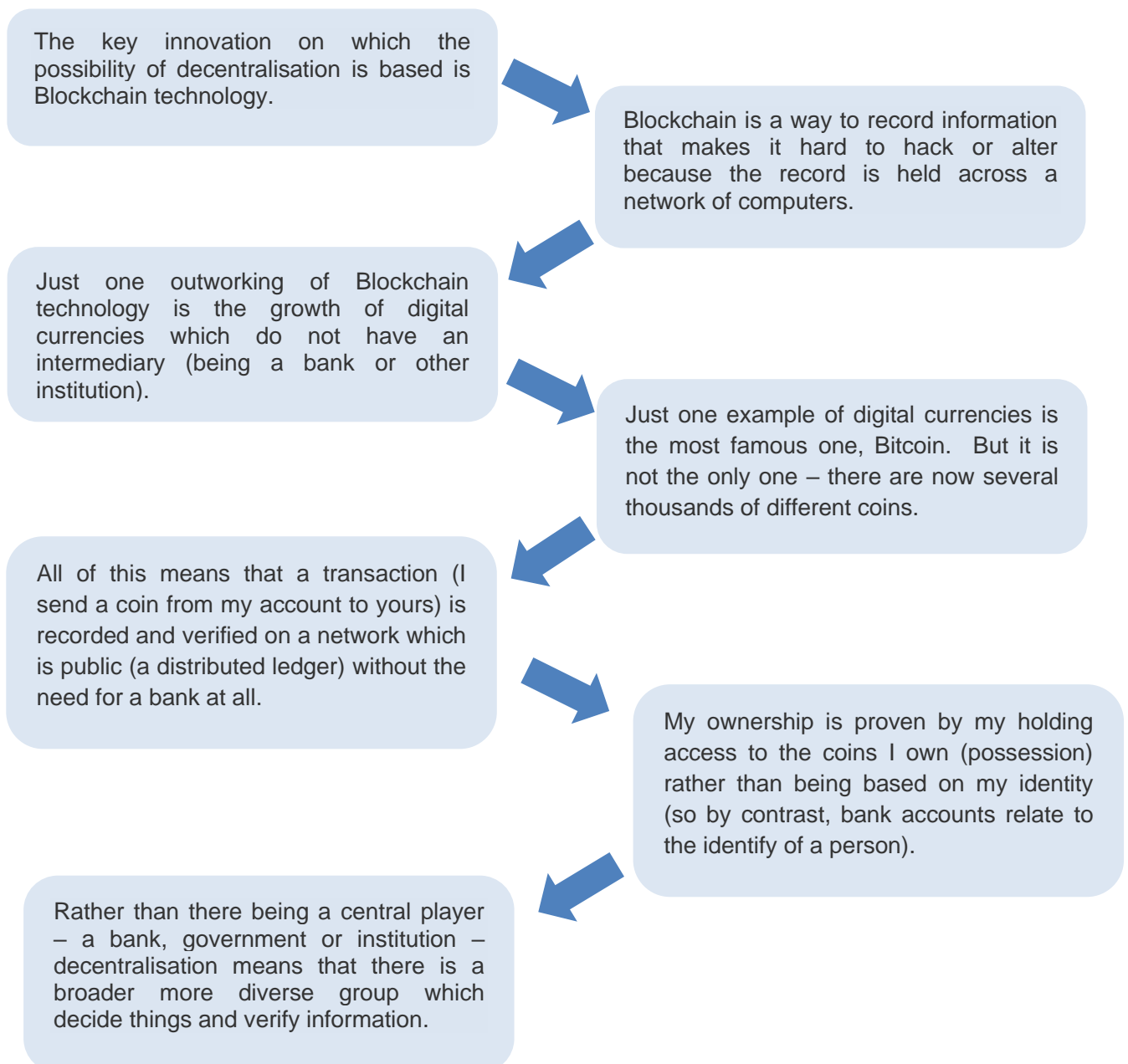
*If you have your own currency, you have your own governance, so each currency becomes their own mini-government. Mini-government is a big word, but it's a body that is governed in a decentralized manner where users have a say, where there's oversight and transparency.*

**William Mougayar**

The change which is coming is simple: we are really talking about a shifting of power.

In the past, various kinds of power have been centralised rather than spread widely. For example, a central bank controls the currency of a country. With advances in technology there are new paradigms of how things are done which result and a key one is the idea of greater decentralisation of power.

Let's logically set out the flow here of why this all might matter. The key elements which are why these developments are of interest to players like the Reserve Bank (the traditional holder of power in relation to money) can be shown by this flow chart:



For all these reasons I can understand why the Reserve Bank of New Zealand and other central banks across the world are wrestling with what it might mean for them. Traditionally they have been the issuers of money – if that can be done by others then does that undermine their role? What value does the dollar they oversee have if a lot of us start using other forms of currency to buy and sell things instead?<sup>1</sup> I would be worried if I were them.

The discussion paper on the Future of Money asks for input on whether they should introduce a central Bank Digital Currency. The context around which they frame this shows the legacy of thinking about their role “as stewards of money and cash” - that is, they play the central role. This is also implied by the first word in CBDCs of “Central”. This flies in the face of the innovations that a CBDC would draw on which are founded on concepts of decentralisation and taking power away from central authorities.

In their paper they note in the Executive Summary: “The Reserve Bank’s overall belief is that a CBDC would be a useful development for central bank money, because it would both support the value anchor role of central bank money, and support the ability of central bank money to act as a fair and equal way to pay and save.” (emphasis added).

In each example of the reasons there and elsewhere in the paper it is about preserving the role of the central bank in the financial system – ensuring the role of central bank money vs new forms of currency, and preserving their role to use central bank money to influence monetary policy and e.g. make decisions that would impact on inflation.

I think that they spell out what they are really worried about most clearly on page 14:

*“ ... private innovations in new forms of money are emerging globally. Some of these new forms of money might sit outside current financial sector regulations or be denominated in new units of account (i.e. not NZD). Notably, large technology companies have proposed issuing global stablecoins. These instruments promise more efficient and innovative means of paying and might obtain rapid global adoption due to the market power of their issuers. Central banks and regulators around the world have responded to the prospect of global stablecoins by making clear their potential risks, issuing statements requesting that these risks be managed and investigating the potential for CBDCs as alternatives. If a global stablecoin were issued successfully in New Zealand, the Reserve Bank could face a scenario where a potentially large number of transactions and savings would be conducted outside NZD and offshore. This could limit our ability to use monetary policy to influence interest rates and therefore inflation and employment targets, which would mean a loss of monetary sovereignty for New Zealand.”*

It seems to me that reading between the lines of this and other comments they are most concerned with: their role if other digital currencies become popular (displacing domestic NZD importance) and the loss of financial stability and ability to influence monetary policy if that occurs. This would be a natural concern for a player which right now is the central authority when it comes to money, when faced with decentralised funds – as they say: “*new forms of money might sit outside current financial sector regulations or be denominated in new units of account (i.e. not NZD).*”

What the current power systems and institutions will struggle with is that the old rules do not apply easily to the new technology. **How will they adapt to new technology that spreads power and means they cannot control things centrally?** It is about an attitude when it comes to new technology and realising the old rules may not apply at all, and that their role may not apply either as their system itself shifts like sand under their feet.

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<sup>1</sup> The flow ons do not stop there – if my ownership of digital currency is based on holding it, rather than identity, then how will anonymity work in the old world, for example around how tax obligations will be enforced?

For example, I remember when I first started at the University of Canterbury and was given my first email – what was an email? At that time in the early 1990s it must have been a big question for the authorities – what was the best way to think about email and how it should fit in to the new rules? Was it like a letter, or was it something else? We know that the same laws and rules that apply to letters and the postal system should not apply to emails (there is no need to buy stamps to send an email – maybe we would have less spam if there was some charge). In the same way the old rules about finance probably should not apply to decentralised finance and the new technologies behind it.

So, what are the opportunities and potential of this new way of doing things?

## Part III: What is the Potential?

*Through decentralised cryptography, Bitcoin eliminates the need for banking intermediaries, significantly lowering transaction costs, and could liberate poverty-stricken economies around the globe by providing access to capital to the one-third of humanity that is excluded from the financial world.*

**Perianne Boring**

DeFi allows financing activities to occur organised by organisations that are not “traditional” and which in the past would have been done by banks and others. There will be failures on the way and bubbles that will pop as well, but the trend is clear: more decentralisation and less centralised control. This also means fewer intermediaries between players in a market.

What this might mean is that:

- there could be a “democratisation of finance”: that is, in places such as developing markets where people cannot access funding as easily, they might be able to do so using DeFi;
- Provide greater access to funds than traditional lenders for entrepreneurs and small or medium sized businesses and start-ups;
- the administration and bureaucracy of traditional finance through bank accounts can be short circuited by allowing direct interactions between people;
- impact investors could support projects directly without needing to go through layers of financial institutions, in order to loan funds directly to groups they want to support;
- those groups might be less “formal” than previously as until now entities have been essential – but instead people might organise around a project without a formal legal structure also existing;
- this is where DAOs might have a part to play – that would need to be the subject of a whole White Paper on its own. I would like to write one next and explore what governance would look like and how they are being used overseas even now in, of all places, the State of Wyoming ([read this](#));
- onboarding of clients (anti money laundering, proof of identity etc) becomes less relevant in a pseudo anonymous environment – DeFi is not dependent on the same sources of trust as it relies on distributed ledgers and consensus showing who owns what;
- there is growing interoperability between different systems/cryptos and with traditional finance.
- traditional white-collar jobs in the West might end up being outsourced to a country like India where there are literally tens of millions who might be able to do the same tasks but be paid in crypto – without complicated transfer fees, conversion rates, timing issues that becomes a real possibility (this idea was discussed by Balaji Srinivasan on podcast episode 506 of The Tim Ferriss Show.)
- might we see a decline of the nation state and rise of cities / smaller units where people affiliate with them instead based on what they offer ‘citizens’ so that cities themselves begin to recruit entrepreneurs and others to join them.

There will be more implications, but this is a start and gives a sense of some of the issues to think about. The point is that there are going to be a lot more flow on impacts than just whether the Reserve Bank of New Zealand should adopt a CBDC or not.

Three areas of potential which I think would be worth exploring further are:

## DAOs

How might decentralised autonomous organisations actually work in practise and what are the legal implications of a structure which sits outside of traditional frameworks of organisation and governance? Could this intersect with developments here around nature itself being given rights?

## Philanthropy

What might a blockchain or crypto solution which focussed on community housing look like? Could we issue tokens which corresponded to the success of a rent to own scheme where the impact was measured in more than just dollar returns but took into account educational standards being lifted, greener houses being built and increased employment (measures which are hard to record but truly shift the dial on poverty and impact)? We plan to explore this at [Community Finance](#) where I am involved.

## Nation states

If I can transfer value to others without needing intermediaries then what role does the nation state play within such a World, which might become more organised around technology projects that provide value via tokens and integrate across most aspects of life. There might be reorganisation of societies that centre around membership of smaller units rather than nations.

## Conclusion: What should we be talking about?

There is enormous inertia - a tyranny of the status quo. Only a crisis - actual or perceived - produces real change. When that crisis occurs, the actions that are taken depend on the ideas that are lying around. That, I believe, is our basic function: to develop alternatives to existing policies, to keep them alive and available until the politically impossible becomes the politically inevitable.

**Milton Friedman**

This conclusion can be short because the challenge is simple. Why is it that Wyoming of all places should be on the global radar of innovation? Because they have passed forward looking legislation for DAOs.

What if New Zealand were to become the global leader in this area across these new technologies discussed in this paper. If that were done then this country might attract technology companies and individuals to base themselves from here. With the increase of remote work it is certainly conceivable that we could become known for having an innovative ecosystem in this area.

There is no putting these technologies back in the box. They will grow and lead to more innovations. The question is whether we want to be part of that conversation and lead the way forwards proactively. That is what we need to be discussing.

## Annex 1: Response to RBNZ questions on CBDCs

We would like your feedback on the following:

**1. Do you agree with the motivations for considering a CBDC, as set out in Section 3? Which motivations are more compelling to you (the declining cash use, innovations in private money or the Reserve Bank's stewardship objective to preserve the fairness and equality afforded by central bank money)? Please rank them in order.**

Yes, agree. I think you should introduce a CBDC as they will become more common so you will be left behind if you don't. I would rank Innovations, Cash Use, Stewardship Role. But I think you are missing the bigger picture points about the move towards decentralisation of power that the new forms of currency represents so more thought on that and long term implications would be good to focus on. See White Paper submitted with these answers.

**2. Are there other motivations not discussed in this paper that should be considered?**

Will a CBDC actually do what you hope it will? For example, would it help to encourage innovation? I'm not so sure. I would have thought new digital currencies that relate to specific projects with use cases will develop their own tokens, although having ability to convert into an NZ CBDC will likely be helpful.

**3. Do you agree that the scope of work should focus on a general-purpose CBDC in the first instance?**

Yes. It sounds like lots of consultation is planned but that also sounds like a slow moving train in response to a fast moving area. Also, as noted I think you are looking at this too much in isolation and need to consider even bigger picture too. I'd like to see more research and analysis on those other areas as CBDCs are just one example of a shift.

**4. Do you agree with the multi-step process for the development and implementation of a CBDC as outlined in Section 3.1 and illustrated in Figure 8?**

Yes, seems fine.

**5. Do you agree with the description of the opportunities presented through the implementation of a CBDC?**

Yes, but see response to next question.

**6. Are there other opportunities that should be considered?**

I don't think what has been written has focused enough on how CBDCs might help encourage innovation and if there would be different types of ways to achieve that. Also, what about a focus on the international dimension eg how would this interact with an Australian CBDC or one in the UK?

**7. Do you agree with the design principles that have been developed to capture the opportunities, described in Section 4?**

Yes.

**8. Are there other design principles to capture the opportunities that should be considered?**

There are some experts in this area so a targeted approach to them might be good (I am not sure how much attention was drawn to this among those groups). For example, the [Edmund Hillary](#)



[Fellowship](#) has 532 people involved in it and I know some have expertise in this area and are now living in New Zealand. There are also companies that are innovating in this space both here and offshore, some with NZ connections.

**9. Do you agree with the description of the challenges and risks in Section 5?**

Yes.

**10. Are there other challenges and risks that should be considered?**

See white paper considerations.

**11. Do you agree with the design principles that have been developed to harness the opportunities and to address the challenges described in Sections 5 and 6 respectively?**

Yes

**12. Are there other design principles that should be considered in respect of the opportunities and challenges described in Sections 5 and 6 respectively?**

See the White Paper.