

# The Inter-Pandemic Payments Era What's Next?

Payments NZ  
The Hub Series 2021

David G.W. Birch  
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Rev 7



# David G.W. Birch

[www.dgwbirch.com](http://www.dgwbirch.com)

*Forbes* contributor;

*Financial World* columnist;

Honorary President, European e-ID Association;

Top 100 Most Influential People in Fintech 2021;

*Wired* top 15 favourite source of business information;

*PR Daily* top 10 Twitter account followed by innovators;

*Financial Brand* top 10 influential voice in banking;

*Total Payments* Europe's most influential commentator on emerging payments;

*Emerging Payments Association* contributor of the year 2018/19.

in addition to board and advisory positions

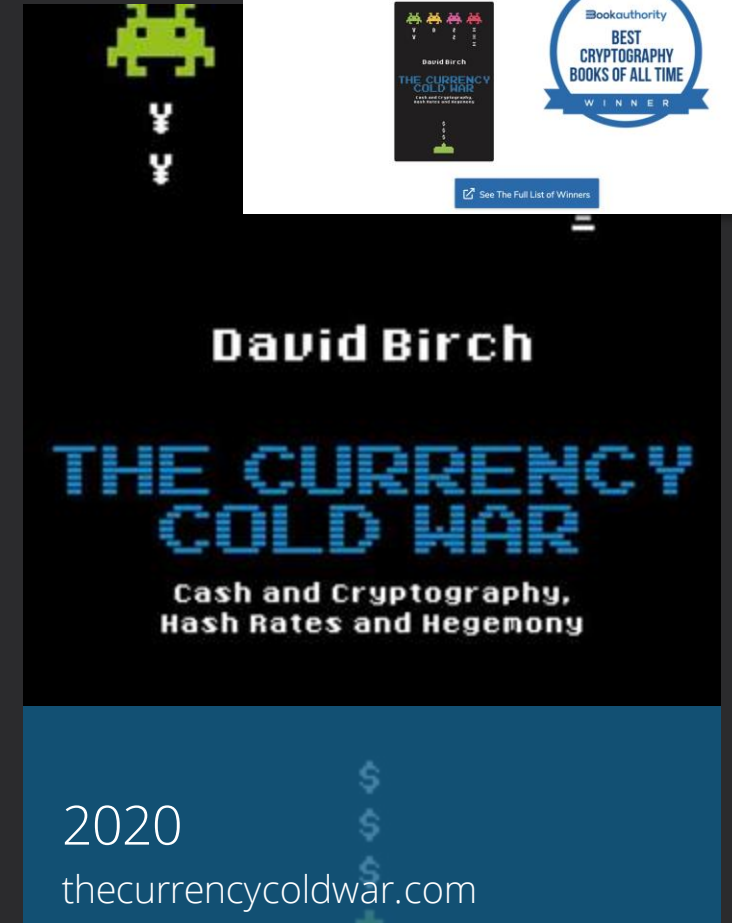
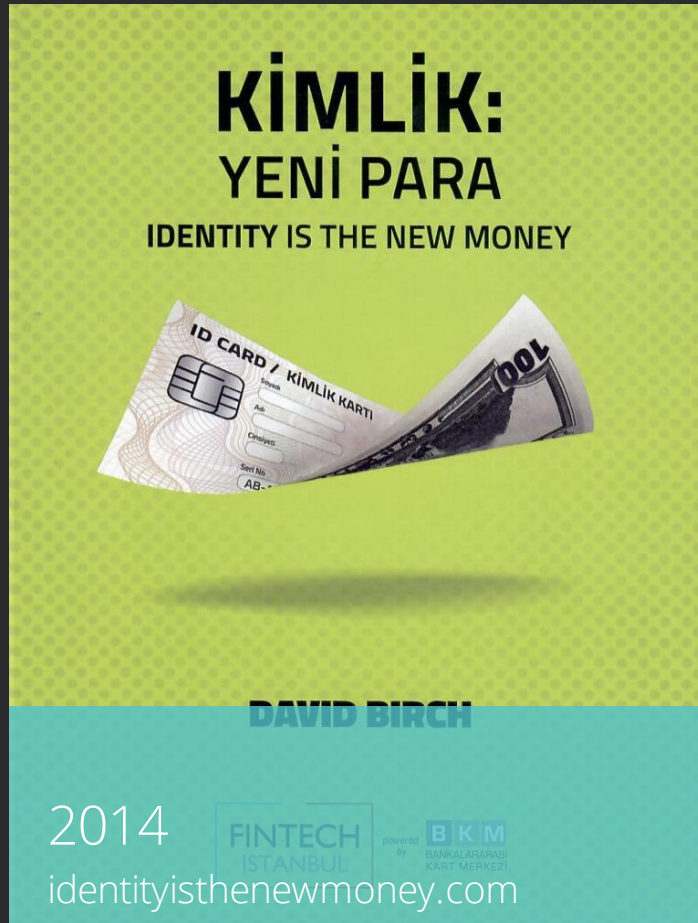


author & advisor on digital financial services



# Books

## digital financial services









# In the Pandemic

"4+4" analysis from 2020

Contact-free services  
Cashless and less-cash economies  
Universal access  
And omnichannel use  
Government stimulus

Payment trends were accelerated by the pandemic but not changed

Data-driven liquidity  
Smart safety  
Privacy  
Digital identity  
For people  
For companies

The key adjacency is digital identity, but that's for another day



# Contact-free

## Make Everything Touchless

### Make all payments touchless.

The fear of contact with contaminated surfaces has given a real boost to the use of contactless payments, card and wallet based. Cashiers are being trained not to take cards from customers and to promote the insertion of cards into readers by customers. The educational impact of, say, local shopkeepers who actively encourage customers to use contactless payments and refuse to take cash will convert some of the more reluctant users. As this habit becomes further engrained, it will become the key to removing barriers to further growth.



*Never leave home. Helen Holmes (Instagram @TheOfficeMuse).*

Everyone uses QR

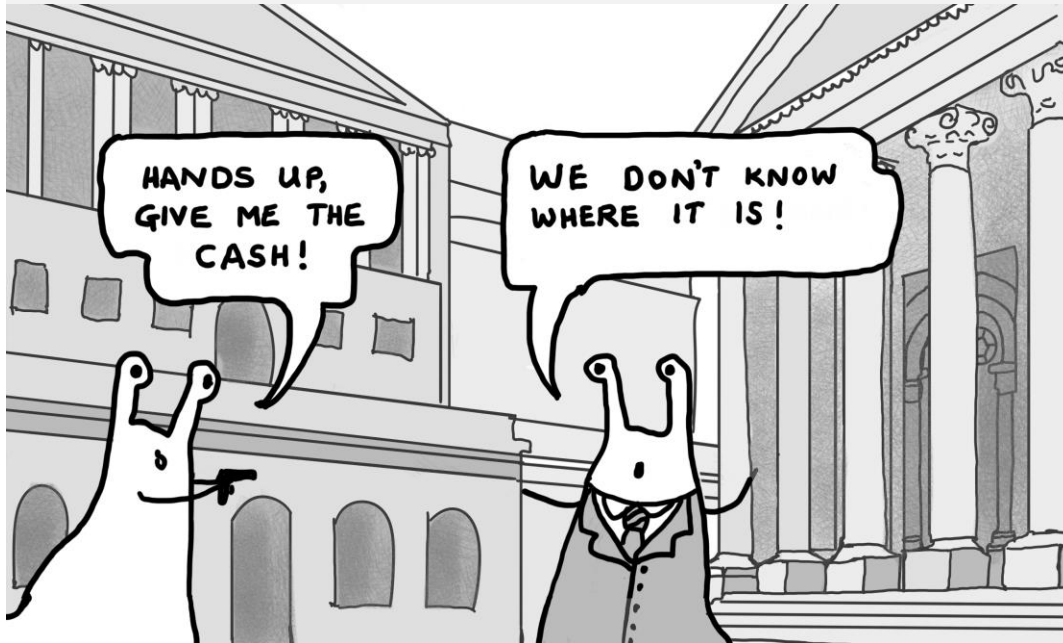
COVID change is permanent



# Cashlessness

## Cashlessness needs a strategy

*Cash-Be-Gone. Helen Holmes (Instagram @The OfficeMuse).*



Who uses cash, apart from criminals?

Ensure universal access.

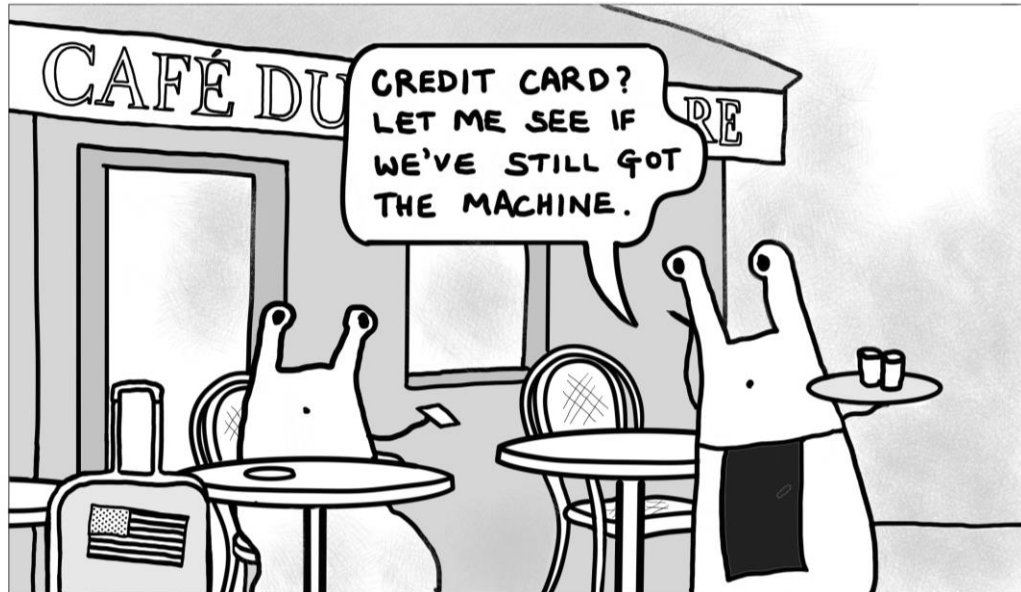
The current crisis is highlighting the fact that not everyone has the same level of access to the necessary new technologies and digital tools. Moving away from cash affects unbanked citizens disproportionately. Merchants without access to digital payments lose out more as remote buying increases. Now is the time to design setups where all merchants and all consumers, irrespective of finances and education, will have access to the tools of the future. Limits in the payments infrastructure or prices should not be used as an excuse.

Pandemic acceleration



# Everywhere

Universal and omnichannel



*Café Du Cards. Helen Holmes (Instagram @The OfficeMuse).*

There are new networks coming

Make the leap to omnichannel payments solutions to support omnichannel commerce.

The growth of online commerce has accelerated and will continue to do so, especially as markets, such as those in Southern Europe, close the gap with more advanced Northern European or Anglo-Saxon economies and China.

Some smaller retailers forced to close in the crisis may not reopen physically but seek a digital future instead. I think we can already see this happening in the UK.

Provide universal access

This does not mean that banks and bank accounts are the solution.

Existing infrastructure or new infrastructure?



# Government stimulus

Support the mass distribution of government relief payments.

Payments organisations can help governments to reach individual citizens as well as businesses, particularly small and midsize enterprises, with a wide variety of support payments (such as childcare vouchers, emergency relief, or loan support) by using various digital payments methods.

In many countries—including, for example, more than 80 percent of El Salvador's and about 70 percent of Egypt's population—traditional bank accounts are not a solution for pandemic aid distribution.

Get money to those who need it

*In Colombia, govt approved a USD41 payment to around 3m of the most economically vulnerable families via low-cost account providers made up of traditional banks and non-bank licensed financial institutions.*

*The target beneficiaries were divided up among the providers with each provider sending a text message to eligible receivers.*

*Here's one from [MOVii](#), one of the newish electronic payment and deposit companies in that country.*

MOVii: 👉 Tu familia es beneficiaria del Ingreso Solidario del Gobierno Nacional por \$160,000 💰. El dinero ya ha sido depositado en tu cuenta MOVii 🏠 y está disponible para tu uso. Ingresa a tu app MOVii para utilizarlo 👍.

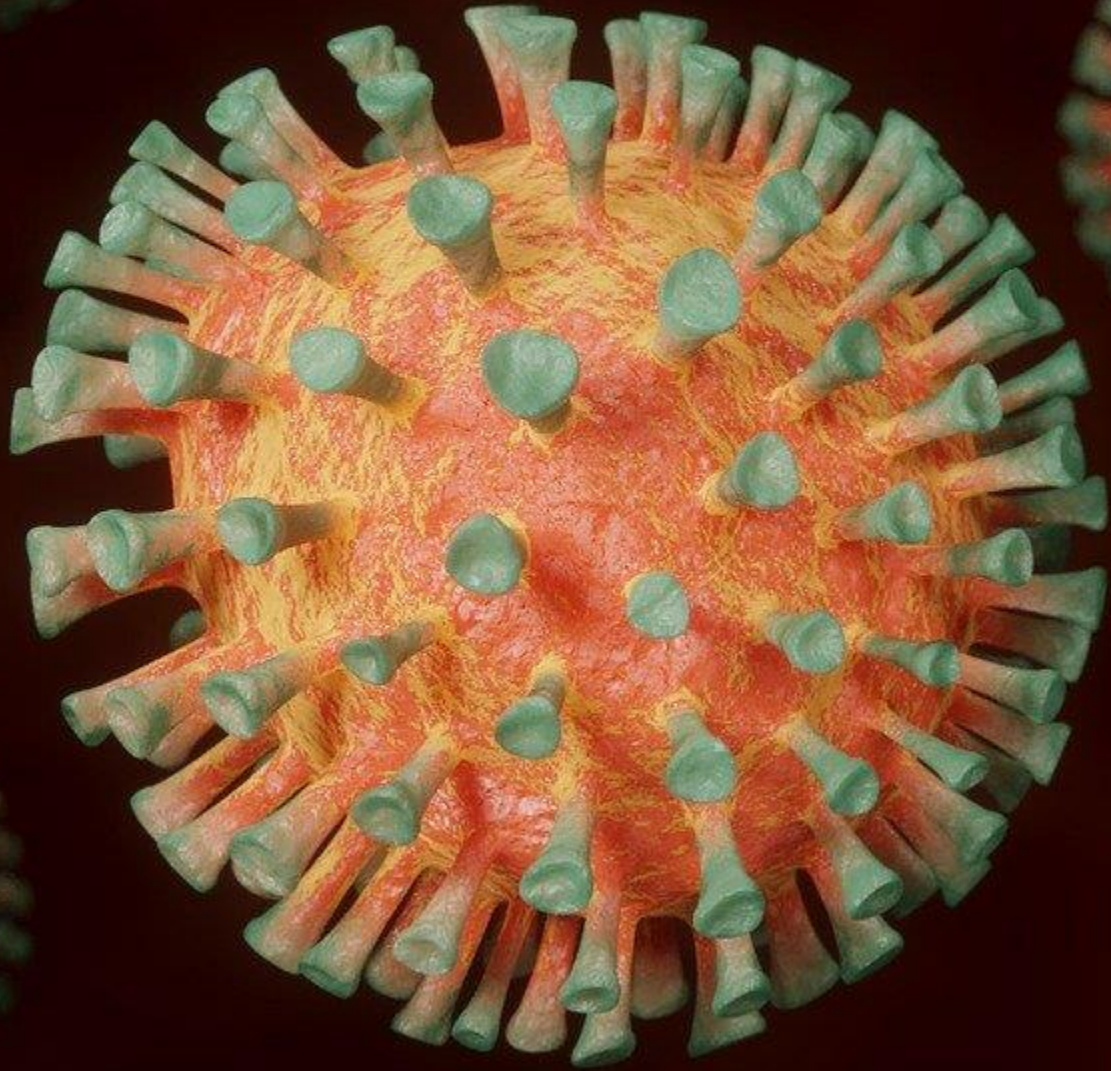
160

COPIAR

But not via banks



Inter-pandemic...






# What Will Change Payments?

## Central Bank Digital Currency


**Forbes**

Jan 4, 2021, 08:15am EST | 1,312 views

### Digital Cash As Legal Tender?

**David G.W. Birch** Contributor   
Fintech  
Author, advisor and global commentator on digital financial services.

**Will Bloomingdale's be forced to accept Bitcoin?**

Remember that the main difference between electronic cash and the electronic money that we have now is that electronic cash can flow from person to person (from laptop to mobile phone, from desktop to USB drive and so on) whereas electronic money flows only between bank accounts. Hence we might expect the dynamics around electronic cash to be very different from the dynamics we are used to in the world of SWIFT, Visa  +1.3% and Zelle.


Where can we look to learn something about these dynamics? Well, China is home to not one but two fascinating, pioneering use cases for electronic cash. One of them is the public electronic cash system run by the People's Bank of China (PBoC), known as the Digital Currency/Electronic Payment (DC/EP) or the digital Yuan. The other is the private electronic cash system run by Hong Kong-based Tether Limited, the cryptocurrency stablecoin known as the Tether token (USDT). The former is currently used for retail purchases whereas the main use of the latter appears to be for trading on cryptocurrency exchanges.


**Digital cash is coming**  
But will it be private or public?

**Forbes**

Jun 5, 2020, 12:34pm EDT | 1,644 views

### Digital Dollars: Space Race Or Cold War?

**David G.W. Birch** Contributor   
Fintech  
Author, advisor and global commentator on digital financial services.



Fintech (Financial technology) concept. GETTY

Venezuela crops up in talks about bitcoin all the time. The political instability, I was told, meant that Venezuelans preferred the safety and security of Bitcoin "digital gold" over their own hyperinflated currency or the uncertainty of a crypto "wild west". This was created in 2017 and is supposedly backed by Venezuela's vast oil reserves. The country's doctors, although whether medical professionals will hold on to these digital tokens or

**How will it work?**  
**And why does that matter?**

### The Great Chinese Money Experiment Is Over

**David G.W. Birch** Contributor   
Fintech  
Author, advisor and global commentator on digital financial services.



HELEN HOLMES (INSTAGRAM @THEOFFICEMOUSE)

**China's 800 year-old paper money pilot project will be ending soon.**

What does it mean?  
Interesting scenarios...



# Why?

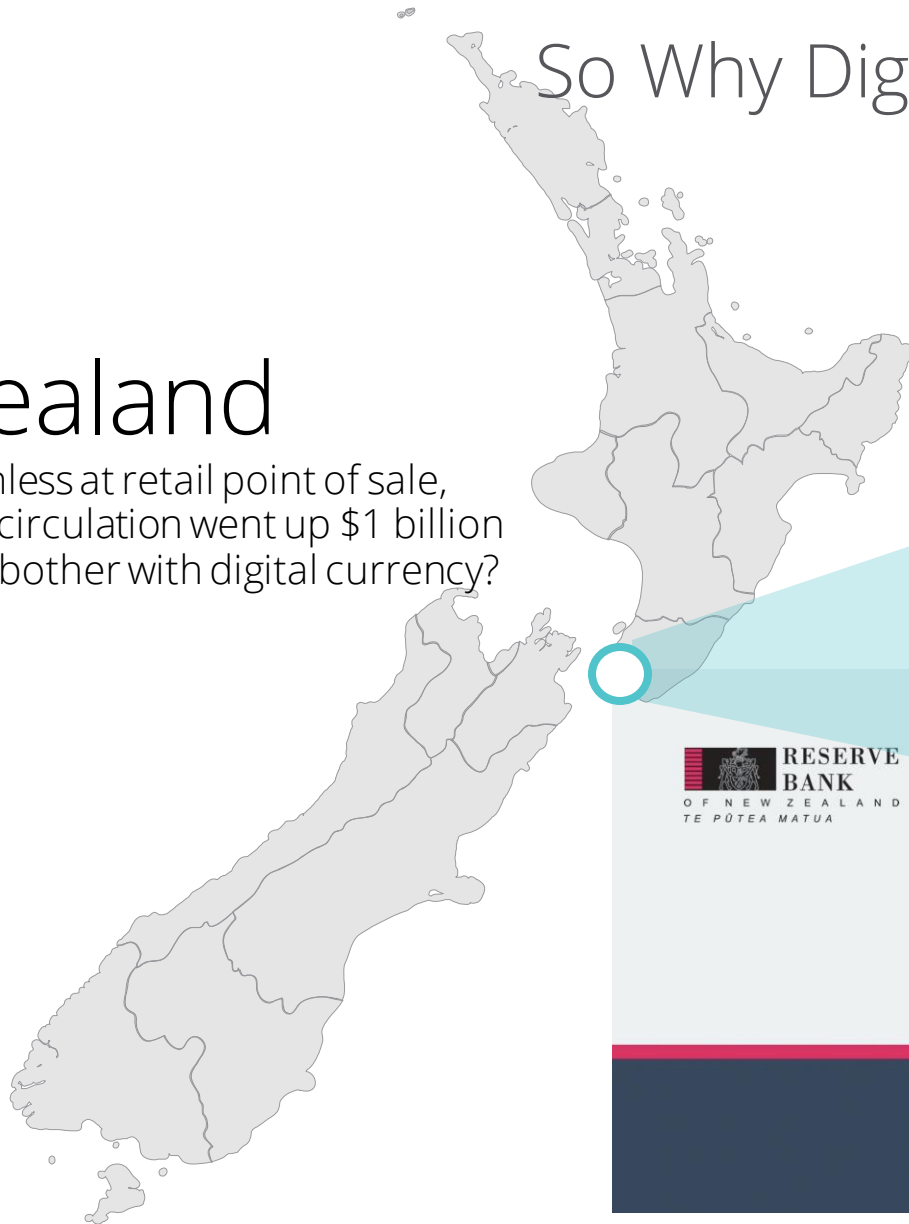
The Six Key Drivers for  
Central Bank Digital Currency



# So Why Digital Currency?

## New Zealand

Is practically cashless at retail point of sale, although cash in circulation went up \$1 billion last year! So why bother with digital currency?



### Issues Paper

The future of cash use —

Te whakamahinga moni anamata

June 2019

Feedback due 31 August 2019

97.4%  
electronic

2.6%  
cash



13



CC BY-SA 4.0

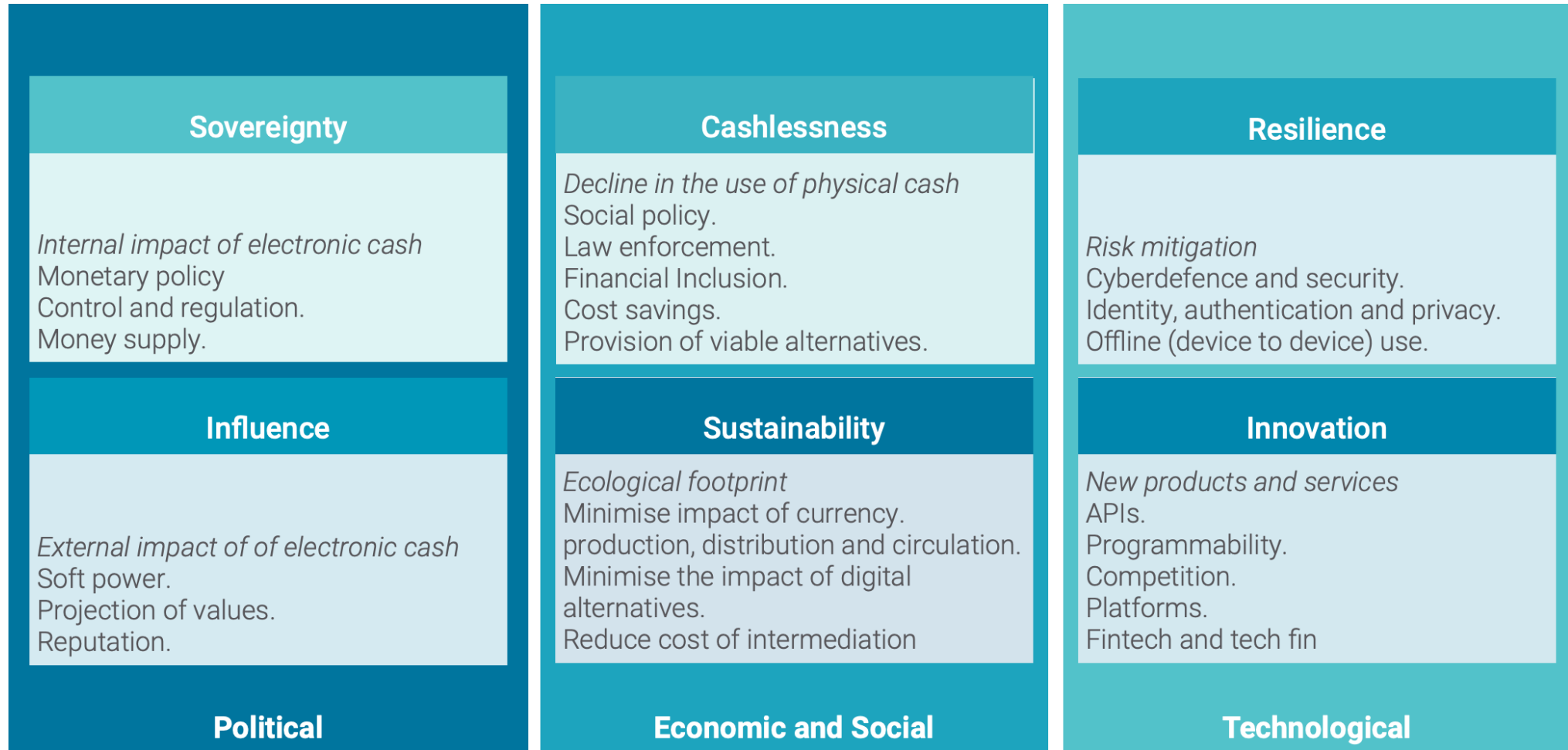
David G.W. Birch (2021)





# The Six Key Drivers for Digital Currency

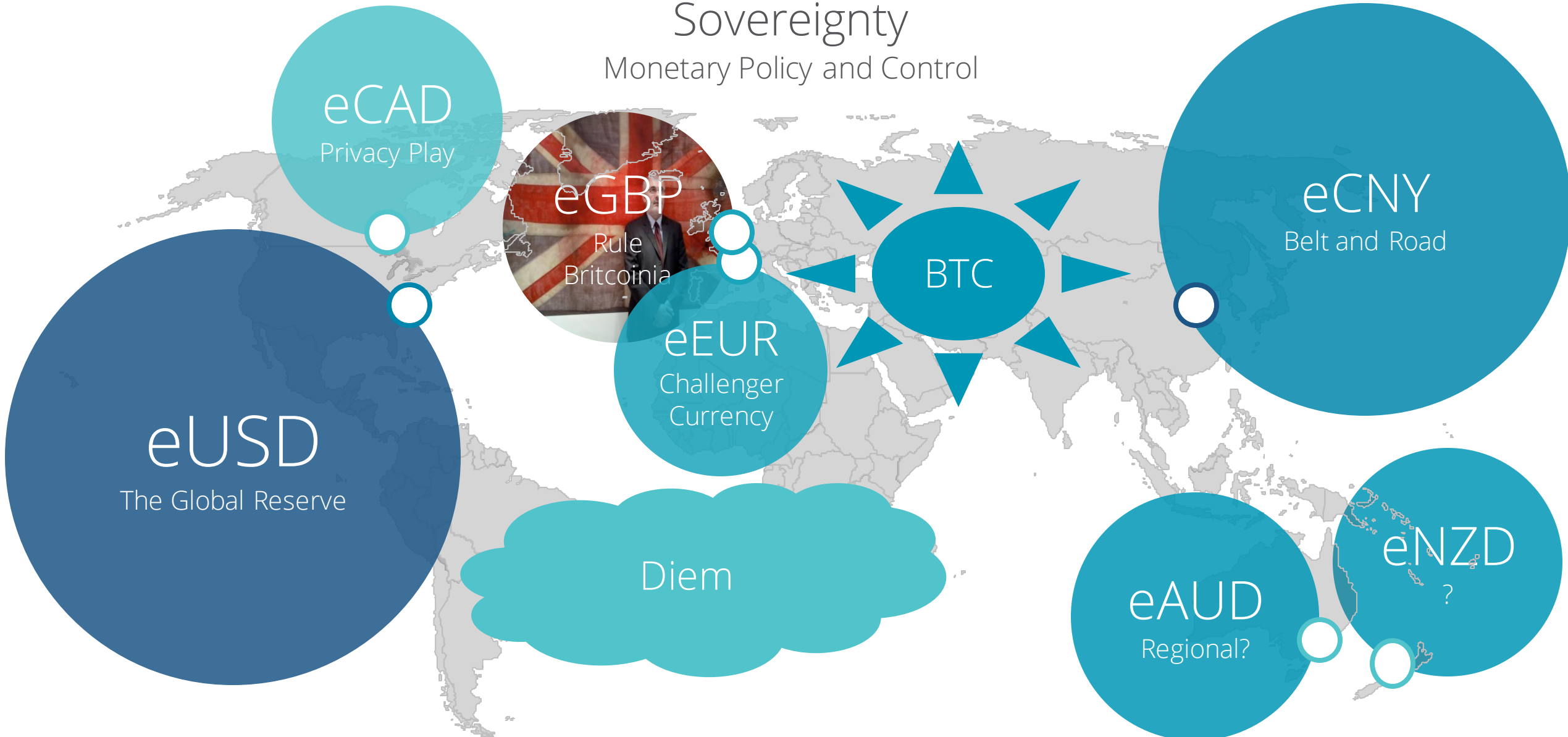
*my PEST summary from ECB, Bank of England and other reports*





# Sovereignty

Monetary Policy and Control





# Influence



“If America is smart, it will wake up and start competing for dominance in digital payments”

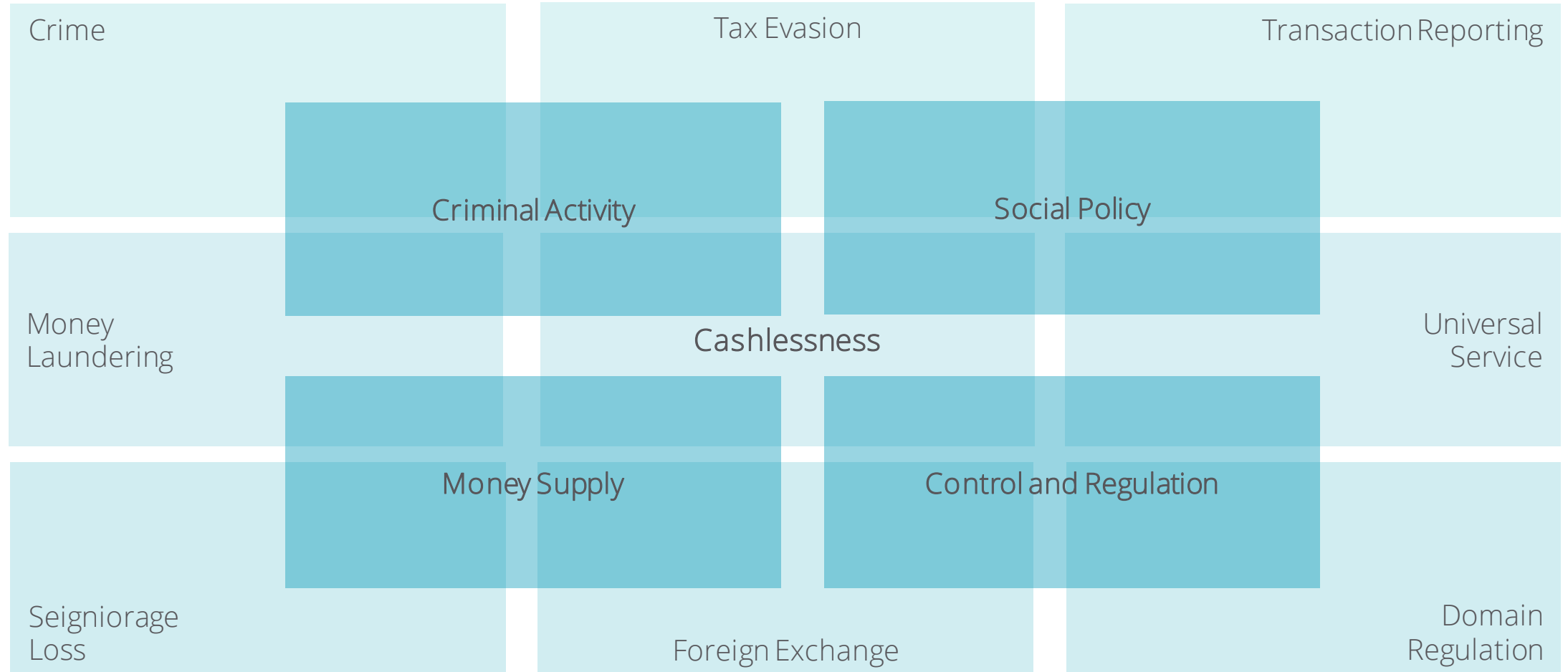
*Historian Niall Ferguson writing in The Sunday Times.*

Whether you think it might be a good thing or not, the dollar’s dominance gives America the ability to use the international payments system as an arm of its foreign policy, a power that many countries find, as Ferguson writes, “increasingly irksome”.



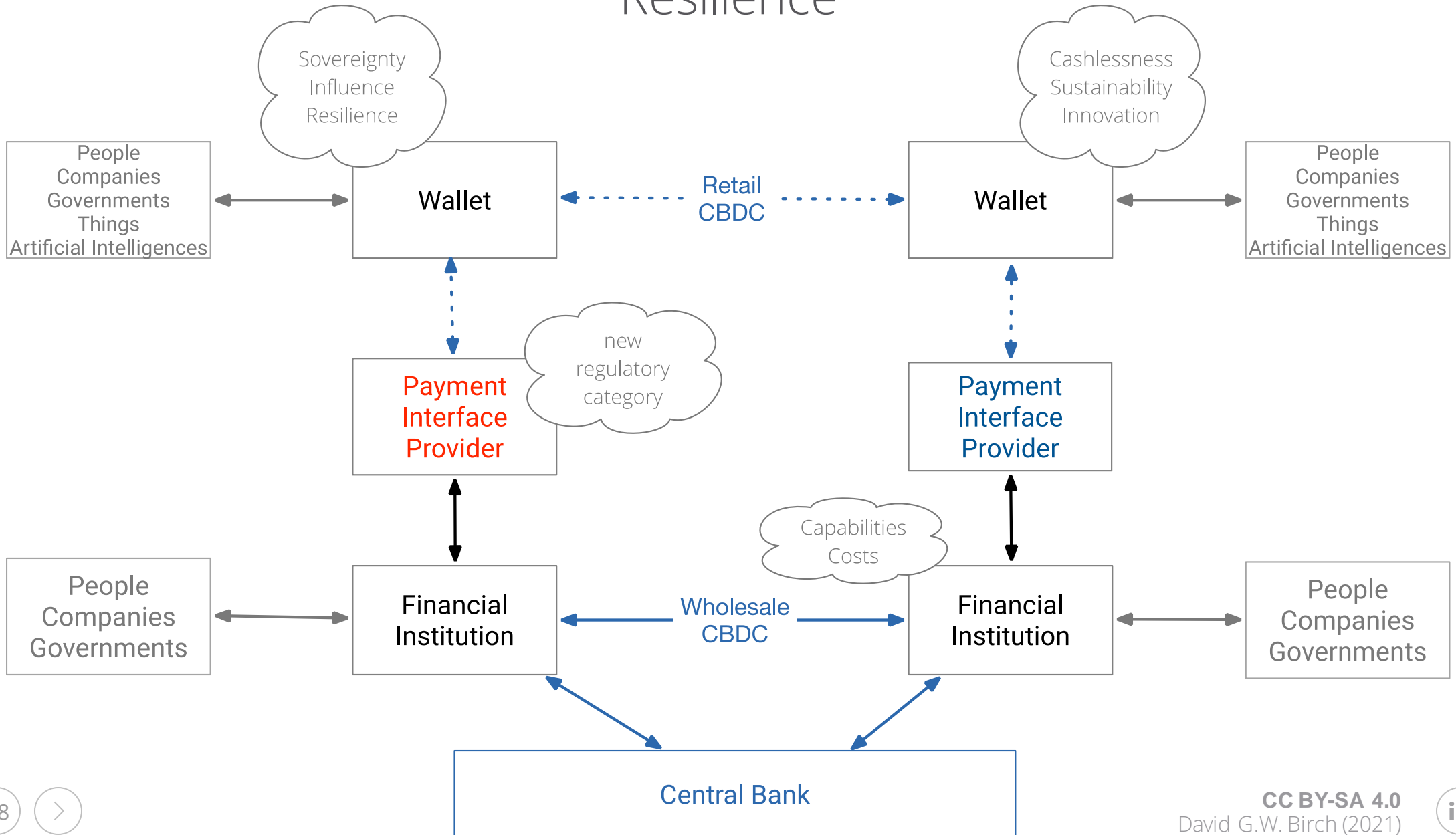
# Cashlessness

Make cashlessness happen the right way, don't allow cashlessness to just happen





# Resilience



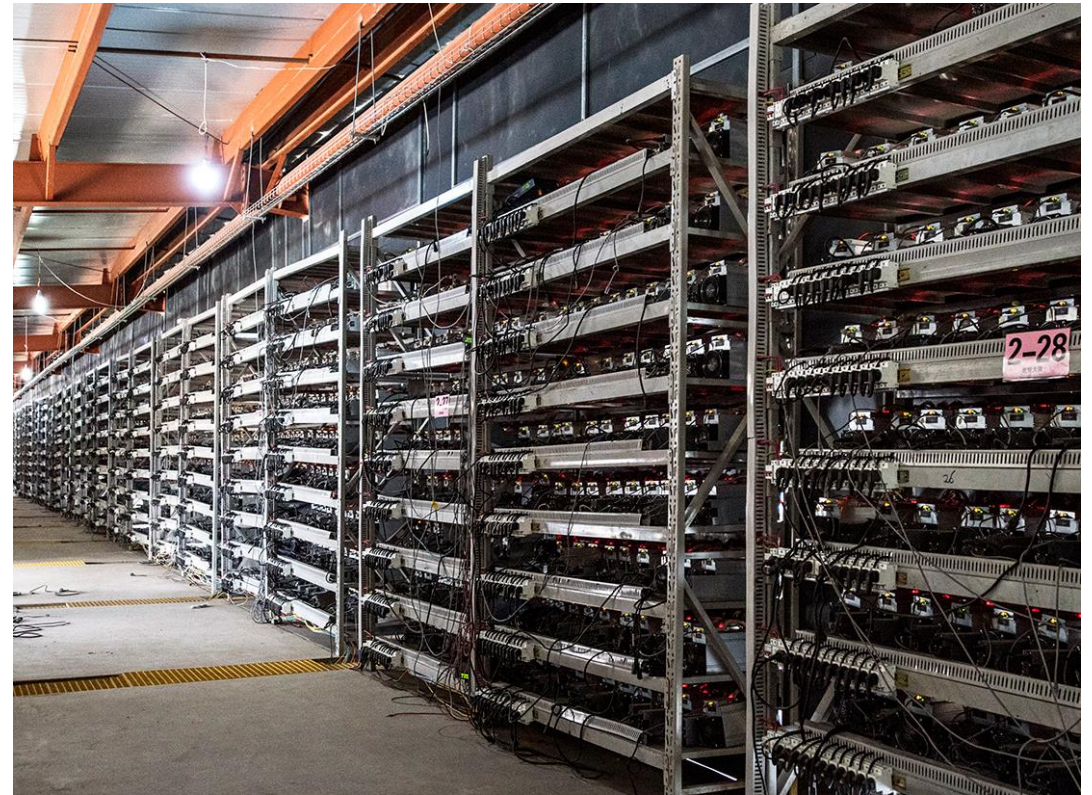


# Sustainability

A more diverse payments ecosystem



UK: Cash Industry Environment Charter

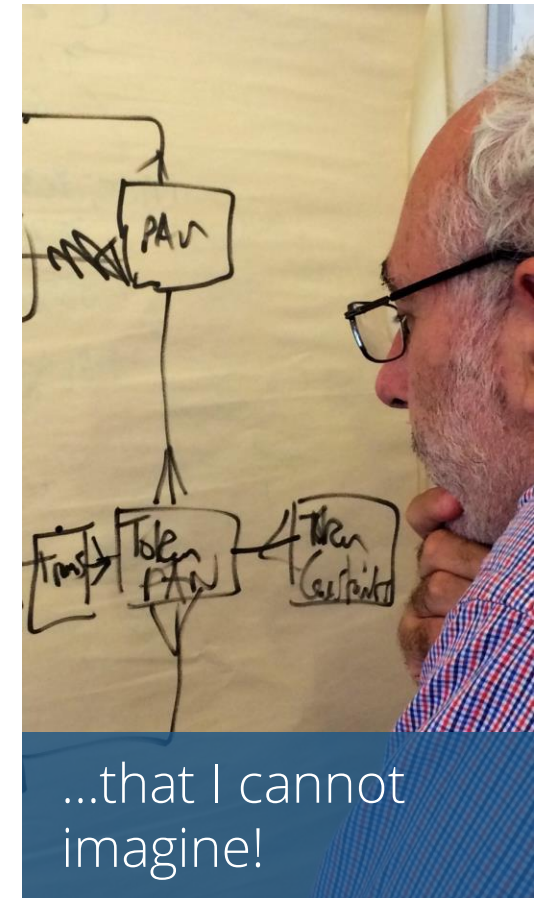
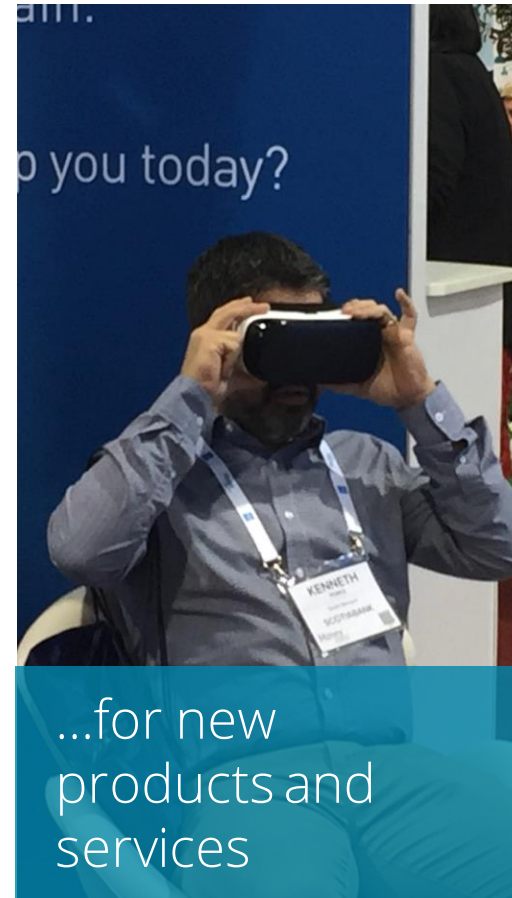
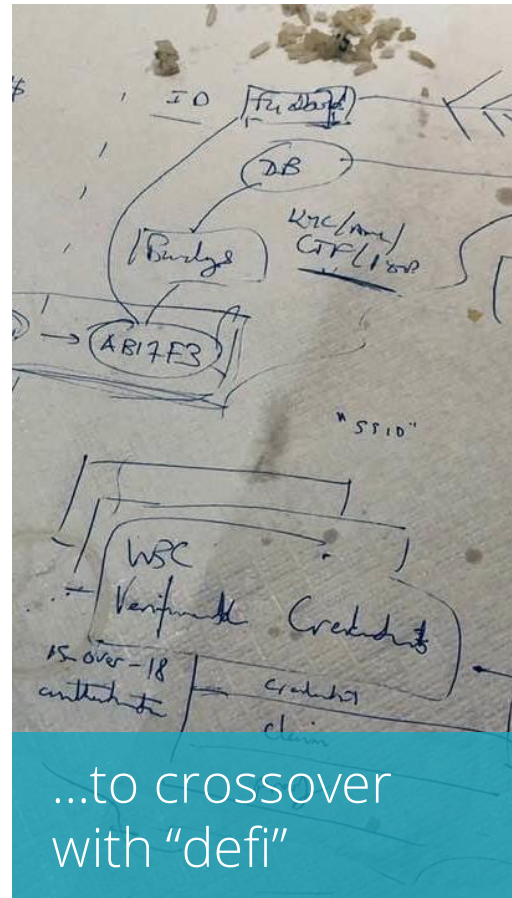


Mr. Musk!



# Innovation

The real long-term benefit of CBDC





# How?

The “space race” for electronic cash



# The Design Choice: Smart Money or Dumb Money?

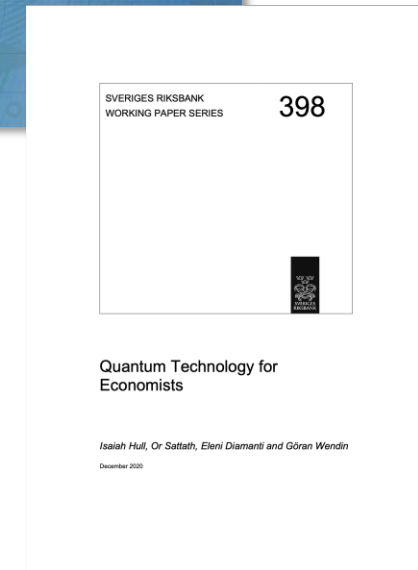
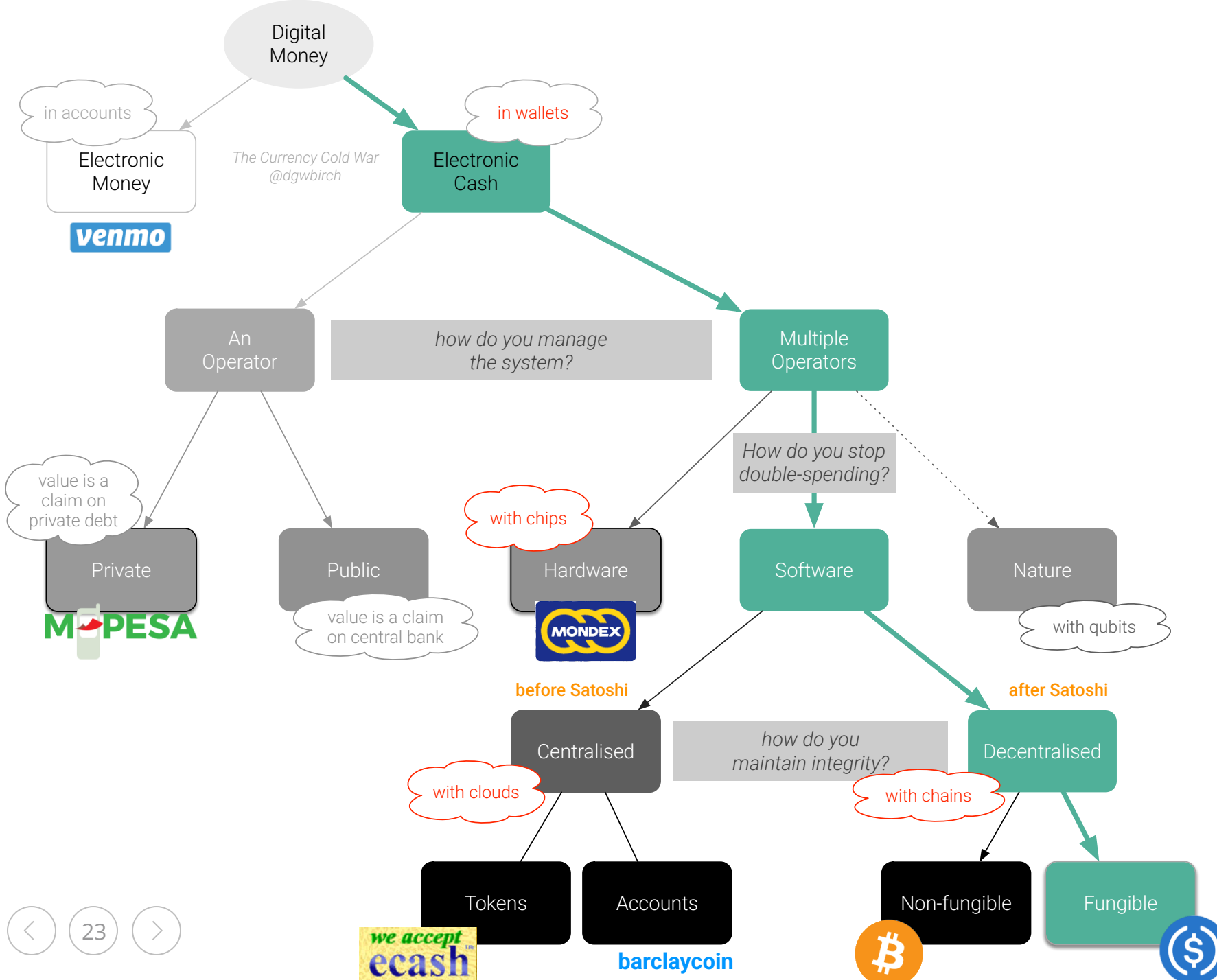
It's choice between innovation and cost saving



Money is an application  
Money as an API  
Money that has a memory  
Money that can make decisions about you  
A dynamic property of communities

Money is bits  
Money is standalone  
Money that substitutes for memory  
Money that you can make decisions about  
A static creation of the state

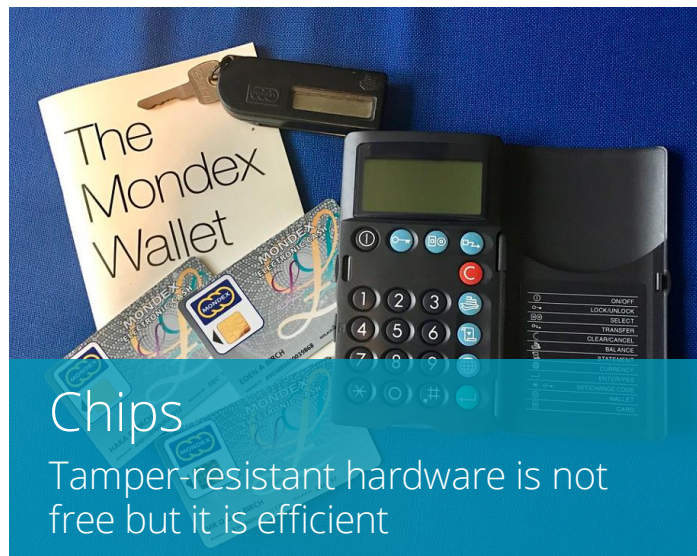






# What are the Real Options?

If we exclude a “public Venmo”



## Mobile-Centric

- Options for regulated but on-bank providers
- Diem as an electronic money institution
- Similar to central bank centralized system

## Cash Substitute

- Device to device (person to person) without central control
- Limits on “purse” holdings
- Could be inclusive

## Smart Money

- APIs for money
- “Smart” “contracts”
- The potential for innovation



# Everything Old is New Again

Visa's OPS (December 2020)

## Towards a Two-Tier Hierarchical Infrastructure: An Offline Payment System for Central Bank Digital Currencies

Mihai Christodorescu<sup>\*</sup>, Wanyun Catherine Gu<sup>\*\*</sup>, Ranjit Kumaresan<sup>\*</sup>, Mohsen Minaei<sup>\*</sup>, Mustafa Ozdayi<sup>\*</sup>, Benjamin Price<sup>\*\*</sup>, Srinivasan Raghuraman<sup>\*</sup>, Muhammad Saad<sup>\*</sup>, Cuy Sheffield<sup>\*\*</sup>, Minghua Xu<sup>\*</sup>, and Mahdi Zamani<sup>\*</sup>

<sup>\*</sup>Visa Research, Palo Alto, CA

<sup>\*\*</sup>Visa Crypto Product, Palo Alto, CA

### Abstract

Digital payments traditionally rely on online communications with several intermediaries such as banks, payment networks, and payment processors in order to authorize and process payment transactions. While these communication networks are designed to be highly available with continuous uptime, there may be times when they are not.

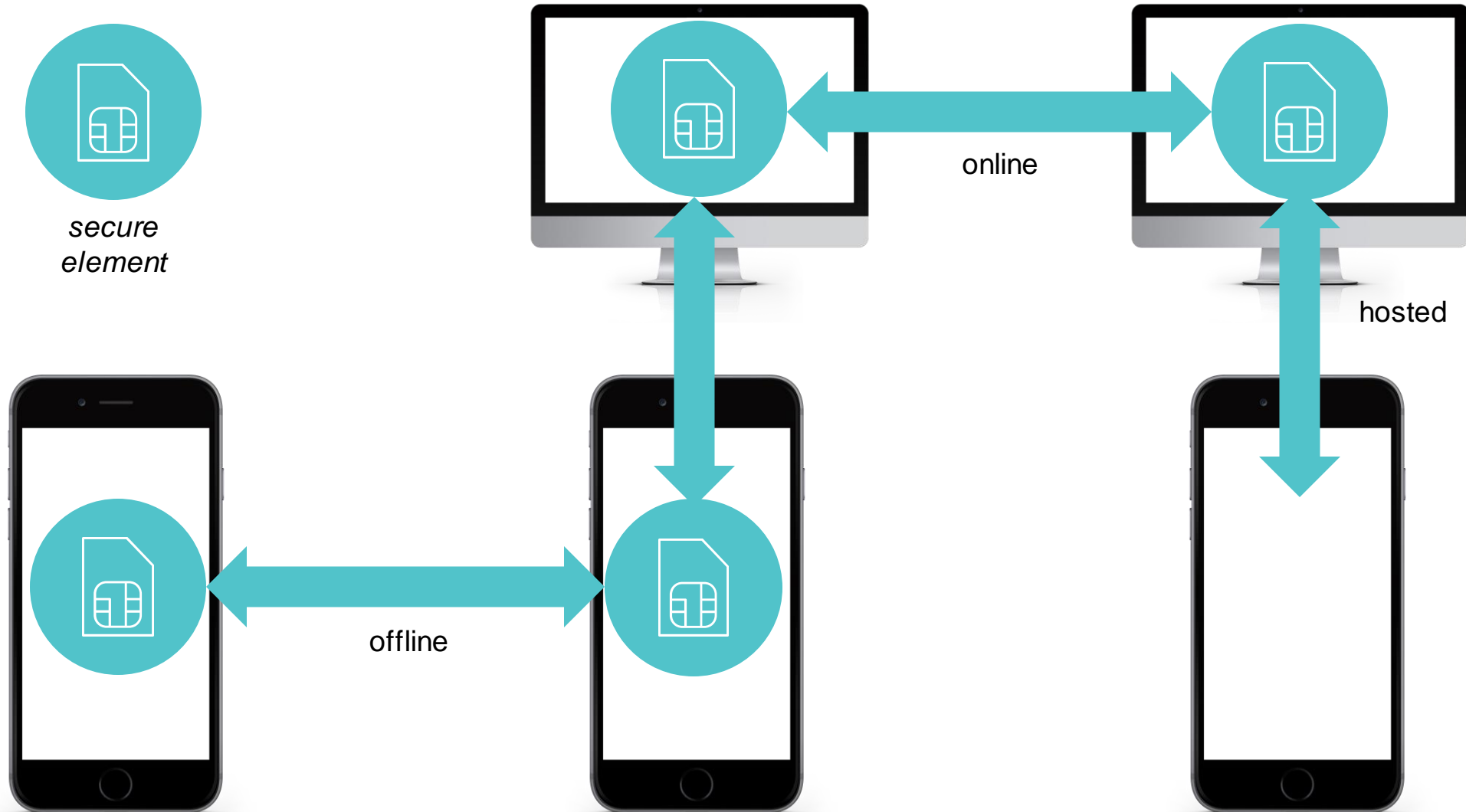
The growing interest in digital currencies (CBDC). To facilitate the use of a two-tier hierarchical trust infrastructure, the central bank as the root certifier and other institutions as intermediate certifiers developed under this hierarchical infrastructure. This infrastructure enables point-to-point offline payments through digital cash can create a resilient situation.

In this paper, we propose an offline payment system (OPS) protocol for CBDC that allows a user to make digital payments to another user while both users are temporarily offline and unable to connect to payment intermediaries (or even the Internet). OPS can be used to instantly complete a transaction involving any form of digital currency over a point-to-point channel without communicating with any payment intermediary, achieving virtually unbounded throughput and real-time transaction latency. One needs to ensure funds cannot be double-spent during offline payments as no trusted intermediary is present in the payment loop to protect against replay of payment transactions. Our OPS protocol prevents double-spending by relying on digital signatures generated by trusted execution environments (TEEs) which are already available on most computer devices, including smartphones and tablets. While

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# Strawman: Two Tier with Tamper-Resistant Hardware





# Currency Propositions

62 Finance & economics The Economist February 20th 2021

**Digital currencies**

## Token gestures

Bitcoin grabs the headlines, but the real action is at central banks

ANYONE who bought bitcoin a year ago must feel vindicated—and rich. The price of the cryptocurrency crossed \$50,000 for the first time on February 16, a five-fold increase over the past year. Wall Street grandees including BlackRock, Bank of New York Mellon and Morgan Stanley are mulling holding some for clients. Last week Tesla, an electric-car maker, said it had bought \$1.5bn-worth of bitcoin and would accept it as payment for its cars. Investors' interest in bitcoin as an asset may be rising, but the inefficiencies of transaction costs associated with its use make it unlikely ever to be a viable currency. Here the action has been within central banks. As consumers have shifted away from using physical cash, and private companies—such as Facebook—have expressed an interest in launching their own tokens, many central banks have begun planning to issue their own digital currencies. The Bank for International Settlements, a club of central banks, last month said it expects one-fifth of the world's population will have access to a central-bank digital currency (CBDC) by 2024.

China is the clear frontrunner. On February 17th it concluded the third big test of its digital currency, handing out 10m yuan (\$1.5m) to 50,000 shoppers in Beijing. It has announced a joint venture with SWIFT, an interbank-messaging system used for cross-border payments. Sweden, another champion, has extended its pilot project.

The latest big central bank to get serious about a CBDC is the European Central Bank (ECB). Its public consultation, seeking views on the desirable features of a CBDC, concluded in January, garnering over 8,000 responses. Speaking to *The Economist* on February 10th, Christine Lagarde, its president, said she planned to seek approval from her colleagues to begin preparing for a digital euro. A decision is expected in April. Ms Lagarde hopes the currency will go live by 2025.

Much like other central banks, the ECB wants to offer consumers digital tender that is as safe as physical cash. Unlike bank deposits, a claim on central-bank reserves carries no credit risk. Digital-currency transactions could be settled instantly on the central bank's ledger, rather than using the pipes of card networks and banks. That could provide a back-up system in the event that outages or cyber-attacks cause private payment channels to fail.

The bank also sees a digital currency as a potential tool to bolster the international role of the euro, which makes up just 20% of central-bank reserves globally, versus the dollar's 60%. It could let foreigners settle cross-border transactions directly in central-bank money, which would be faster, cheaper and safer than directing them through a web of "correspondent" banks.

Its main draw may be to offer a level of privacy that neither America nor China can promise, says Dave Birch, a fintech expert. The former uses its financial system to enforce sanctions; the latter seeks control. But getting the design right will be tricky: the European Union still wants to be able to track cash that is being laundered or hidden to dodge taxes. One fix could be to let users open e-wallets only once they have been vetted by banks, but for the use of the digital currency itself to be unmonitored.

When the pandemic first struck the world seemed largely irrelevant. That was by design: it permits trade restrictions if they protect health. Global Trade Alert (GTA), a watchdog, recorded 202 export restrictions on medical supplies and personal-protective equipment between January and September 2020. Members' failure to alert the WTO of their actions was more egregious. Bernard Hoekman of the European University Institute calculated that over a similar period GTA recorded more than twice the number of trade measures reported to the WTO.

Now some are asking whether the WTO should do more to discourage trade restrictions. Members including Singapore and New Zealand have sought to limit export controls and lower import barriers for pandemic-related products. On paper the proposal offers gains for everyone: companies in producing countries would access bigger markets, and consuming countries would achieve greater security of supply. But the idea has not caught on among exporters, perhaps because they know that they would struggle to keep up their side of the bargain when crisis hits. Ms Okonjo-Iweala is keen to beef up the WTO's monitoring efforts, which should be easier.

Another complaint has been that the WTO's intellectual-property rules are too rigid, and protect pandemic profiteers over the poor. Médecins Sans Frontières, a charity, has pointed to Italian producers of 3D-printed ventilator valves threatened with patent-infringement lawsuits, or South African producers struggling to access raw materials for covid-19 tests. In emergencies the agreement on Trade-Related Aspects of Intellectual-Property Rights (TRIPS) allows governments to issue "compulsory" licences to make health-related products without the permission of the patent holder. So far, though, none has.

**Trade**

## In search of a cure

WASHINGTON, DC

The WTO has a new chief. Is it time for new trade rules too?

FIXING THE World Trade Organisation (WTO) is not enough for Ngozi Okonjo-Iweala, the first woman and first African to lead it. On February 15th, the day she was appointed as director-general, she announced that she wanted to help bring an end to the pandemic, too. The two are related; she hopes to encourage members to lift export restrictions on food and medical products, and even stimulate vaccine production. The former Nigerian finance minister and chairwoman of Gavi, a vaccine-finance agency, is not alone in thinking the WTO could do more.

For the full interview with Christine Lagarde, go to [economist.com/C1aped](https://economist.com/C1aped)

The [ECB] also sees a digital currency as a potential tool to bolster the international role of the euro, which makes up just 20% of central-bank reserves globally, versus the dollar's 60%. It could let foreigners settle cross-border transactions directly in central-bank money, which would be faster, cheaper and safer than directing them through a web of "correspondent" banks. That could make the digital euro attractive to businesses and investors.

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# Before Babylon, Beyond Bitcoin (2017)

 Vipin Bharathan Contributor  
Crypto & Blockchain  
Working on digital transformation by busting boundaries.

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**Public Money**

Why is it called Public Money? It is an archipelago consisting of 700 islands scattered across a vast expanse of ocean; more than 470k square

Central Bank Money

- Wholesale
- Retail digital cash

**Akon City: \$6 Billion  
Cryptocurrency City Set to  
Begin Construction**



**New Money**

Community Money  
*Cryptography Money*

roll out in emerging economies.



**Private Money**

Commercial Bank Money  
Company Money



# Private: Facebooks

*Mark Zuckerberg told the audience at F8 in 2019 that sending money should be as easy as sending a photo. WhatsApp is already testing this with a million people in India and the feedback so far has been great.*



# Diem



The screenshot shows a Finextra article. The header is dark blue with 'Finextra' in white. Below the header is a navigation bar with 'People', 'Regulation & Compliance', 'Payments', and 'Retail Banking'. The main headline is 'Libra rebrands as Diem in effort to distance itself from Facebook'. The date is '01 December 2020' and there are social media shares for Twitter (9), LinkedIn (8), and Facebook (2). The article text starts with 'The Libra Association has hailed a "new day" for the Facebook-backed cryptocurrency project, rebranding as Diem in an attempt to stress its independence as it seeks regulatory approval for a 2021 launch.' Below this is a sub-headline 'Editorial | what does this mean?' and a paragraph: 'Plans for the cryptocurrency have been watered down excessively over the past year after facing a regulatory backlash and the departure of a number of key member associations from the payments sector.'

*If Libra becomes successful "it would instantly become systemic and will have to be subject to the highest standards of regulation".*  
**Mark Carney, Governor of the Bank of England (2019).**

- “Stablecoin”
- Dollar first
- Still await a variety of approvals
- But... who wouldn't use it?



# Cash Isn't the only thing in a Wallet



“an additional goal of the [Libra] association is to develop and promote an **open identity standard**. We believe that a decentralized and portable **digital identity** is a prerequisite to financial inclusion and competition”



# Public: PBOC

Deputy governor Fan Yifei told an audience at Sibos 2020 (5<sup>th</sup> October 2020) that until “late August” the bank had processed 3.1276 million transactions. The total value of theses add up RMB 1.1 billion (\$162 million).

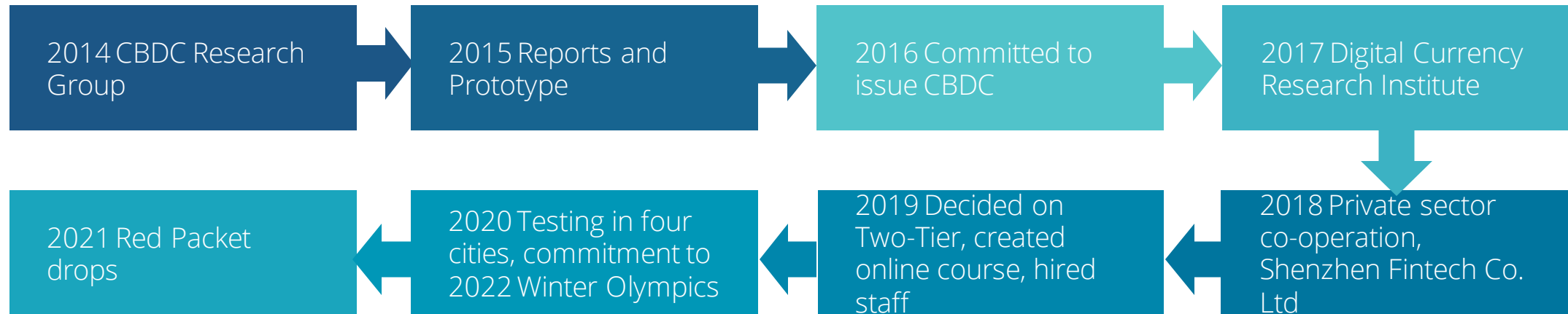
More than 6,700 pilot use cases have been implemented for the CBDC.

An aggregate of 113,300 personal digital wallets and 8,859 corporate digital wallets have been opened.



# A Reaction?

PBOC has been working on CBDC for seven years



*"it is an irresistible trend that paper money will be replaced by new products and new technologies... digital currency should be issued by the central bank (my emphasis)... plans to gradually phase out paper money".*

*Governor of PBoC, Zhou Xiaochuan (2016).*

*China will adopt the "two tier" approach, noting that to offset the shock to the current banking system imposed by an independent digital currency system they will incorporate digital currency wallet attributes into the existing commercial bank account system*

*"so that electronic currency and digital currency are managed under the same account"*

*Yao Qian, PBOC technology department (2017).*

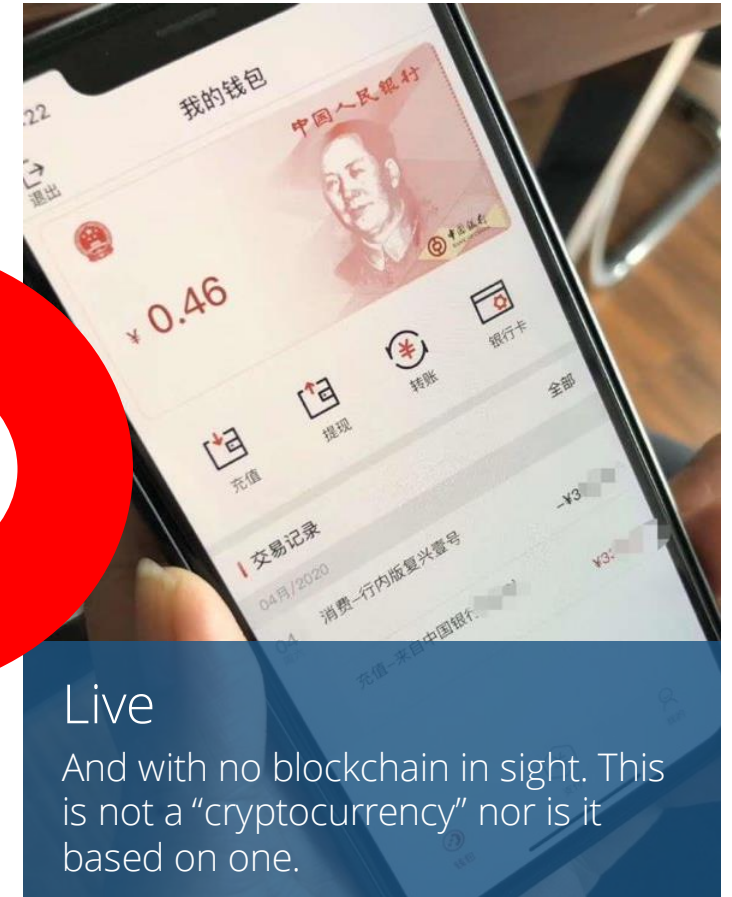
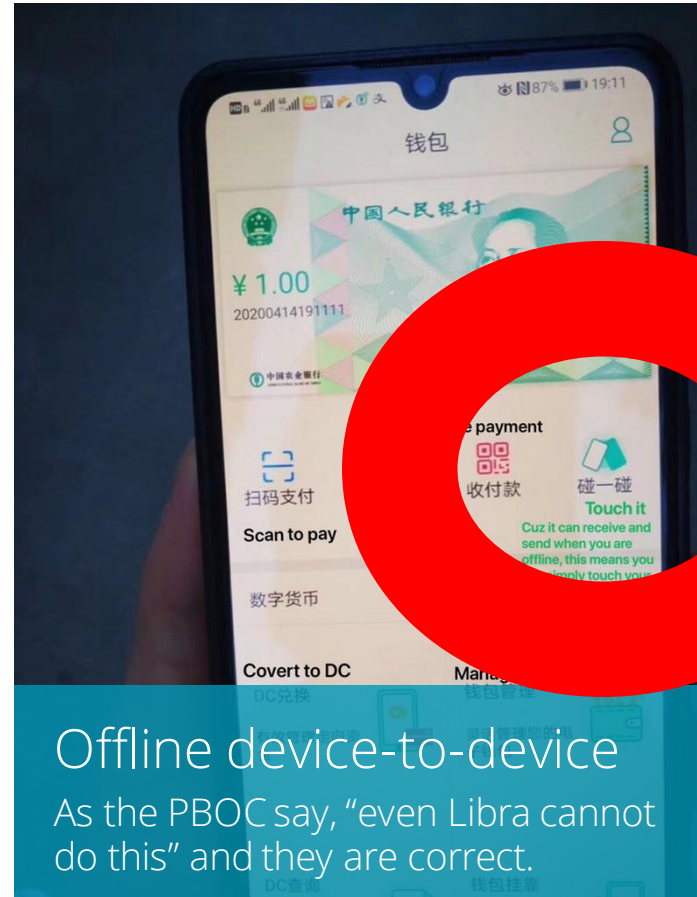
**CC BY-SA 4.0**

David G.W. Birch (2021)



# CBDC is real in China

Launched in 2020, already in Beijing ATMs





# Cryptography: Bitcoin

SAN SALVADOR, June 9 (Reuters)

El Salvador became the first country in the world to adopt bitcoin as legal tender after Congress on Wednesday approved President Nayib Bukele's proposal to embrace the cryptocurrency, a move that delighted the currency's supporters.

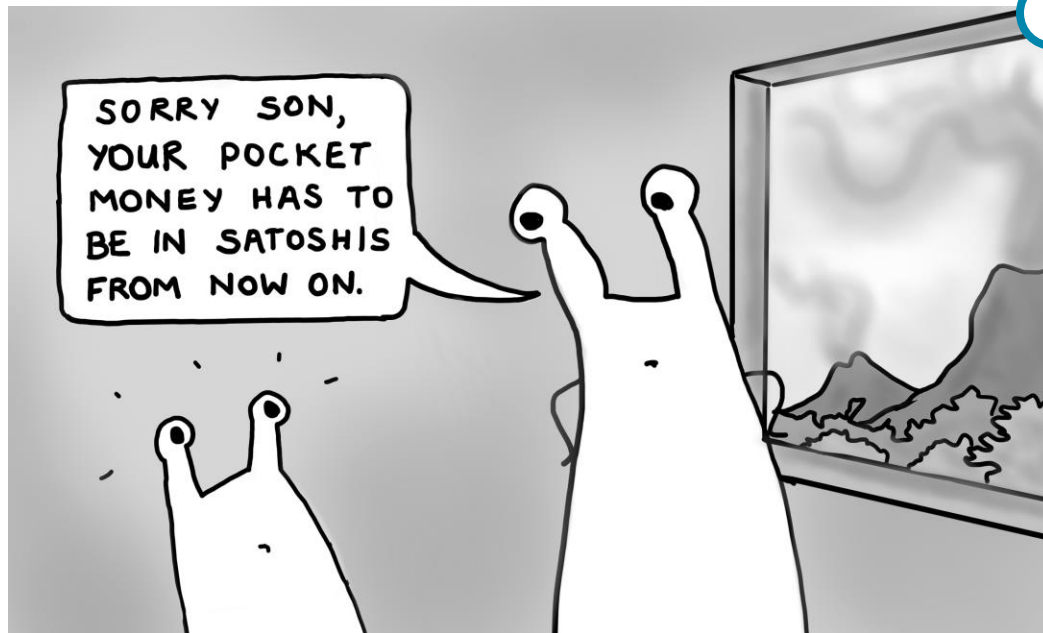


# The Latest Experiment

Hyman Minsky, Kublai Khan, Robespierre, El Presidente and Me

## El Salvador

The new experiment in compulsory tender



*Art. 7. Every economic agent must accept bitcoin as payment when offered to him by whoever acquires a good or service.*





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thecurrencycoldwar.com  
willrobotsneedpassports.com