



Digital and Virtual Currencies for Sustainable Development

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FOREWORD

When the world's first decentralised digital currency, Bitcoin, was released to the public in 2009, it shook the foundations of the global financial system. Propelled to notoriety in 2013 following the United States Federal Bureau of Investigation's shutdown of the online black market "Silk Road", Bitcoin is one of a growing number of digital currencies used to conduct online transactions today.

Despite operating inefficiencies and security concerns, digital currencies are becoming a popular method of payment around the world. Digital currencies are not only the domain of developed nations. They also offer opportunities for developing countries pursuing sustainable development. Digital currency can allow for cheaper and more efficient money transfers, thereby alleviating global remittance costs. In addition, digital currency can foster favorable conditions for e-commerce, promote entrepreneurship, and facilitate small-scale international trade. With the spread of mobile banking technology, digital currencies may also, by lowering the costs of money transfers, contribute towards greater financial inclusion.

Despite the potential application for supporting inclusive finance, the ability of digital currencies to deliver significant benefits is conditional on structural, regulatory, and security issues. Price volatility, difficulties in tracking the financing of illegal activities, and consumer protection concerns are among the main challenges. Although much of the success of digital currencies can be attributed to their decentralised nature, many of their drawbacks stem from the lack of regulation that comes with such decentralisation. As digital currencies gain traction throughout developed and developing nations alike, it will be a government imperative to explore how best to take advantage of their development applications while curbing the potential dangers and inefficiencies inherent in their use.

To benefit from digital currencies, countries should strengthen the infrastructure necessary to increase mobile broadband penetration, as well as encourage innovation in the digital currency industries. Additionally, to reach the full sustainable development potential of digital currencies, policymakers should take care to restrict illegal use, while at the same time not stifle innovation.

Digital currencies may still be in the early stages of growth, but their potential to accelerate sustainable development in the Asia-Pacific region makes it a policy agenda that deserves further exploration, research and policy debate.

A handwritten signature in black ink, appearing to read "S Akhtar".

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ACKNOWLEDGEMENT

This paper was prepared under the overall direction and guidance of Shamshad Akhtar, Under-Secretary-General of the United Nations and Executive Secretary of the Economic and Social Commission for Asia and the Pacific (ESCAP). Mia Mikic, Director of Trade, Investment and Innovation Division of ESCAP, provided valuable advice and comments. The report was coordinated by a core team under the direction of Jonathan Wong, Chief of Technology and Innovation of ESCAP. The core team included Catherine Yim and Phadnalin Ngernlim.

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DIGITAL CURRENCY – KEY CONCEPTS

Digital currency is an umbrella term for currency that digitally represents value. It encompasses both “e-money” and “virtual currency”.

E-money is a digital representation of fiat currency (the coin and paper money of a country established as legal tender) and is used to transfer value denominated in fiat currency electronically.

Virtual currency is a “digital representation of value that can be digitally traded and functions as (1) a medium of exchange, and/or (2) a unit of account, and/or (3) a store of value, but it does not have legal tender status”¹. That is, virtual currency is a subset of digital currency that is distinct from e-money.

Virtual currency can take many forms. It can be either **convertible** or **non-convertible** (that is, exchangeable or non-exchangeable for real currency), and follow a **centralised**, **decentralised** or **hybrid** model (have a single administrating authority, none at all, or some combination thereof). Virtual currencies also include algorithm-based, open-source, peer-to-peer, decentralised, convertible **cryptocurrencies**, such as Bitcoin, whose operations are protected by cryptography.

Cryptocurrencies, a subset of virtual currencies, use an innovative method to process virtual transactions, called “**blockchain**” or, more generally, **distributed ledger technology**. When one cryptocurrency user decides to send money to another, this transfer request is sent through a decentralised database shared among a network of computers who must all approve the transaction before it can be recorded. Once approved, the transaction “block” is added to an existing “chain”, creating a “digital ledger” that holds information securely and transparently for everyone on the network to see. While Bitcoin is the leading cryptocurrency, there are over 700 different alternative cryptocurrencies (e.g. Litecoin, Ethereum, Zcash) that are modified or improved versions of Bitcoin.

SUSTAINABLE DEVELOPMENT APPLICATIONS

Financial inclusion

One of virtual currency’s most promising uses for sustainable development is financial inclusion. Financial inclusion exists when “*individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way*”². In the Asia-Pacific region, there is a pressing need for greater financial inclusion. According to the World

¹ See: <http://www.worldbank.org/en/topic/financialinclusion/overview>

Bank's Global Findex Database, 54% of adults remain unbanked in South Asia, 49% in Europe and Central Asia, and 31% in East Asia and the Pacific².

Increased global cell phone usage has been the first step in bringing financial services to unbanked populations in the Asia-Pacific region. The International Data Corporation predicts that by 2017, 70% of all smart phones shipped will go to emerging markets³. According to a 2016 Pew Research Center report, 37% of those surveyed from the Asia-Pacific region have smart phones, and 87% own a cell phone of some type⁴. Smart phone penetration in Asia is forecasted to reach 46% this year, up from 23% in 2012⁵. The Asia-Pacific region is also leading the world in mobile broadband expansion, boasting the highest number of mobile broadband subscriptions⁶.

The widespread use of cell phones, and increasingly smart phones, has paved the way for digital alternatives to traditional banking. In India, for instance, around 74 out of every 100 people have cell phones, but only 35 have bank accounts⁷. In Central Asia, only 5% of adults in countries such as Tajikistan, Turkmenistan, and Kyrgyzstan report having a bank account. As mobile banking technology spreads, there is potential for the growing mobile money market to offer greater financial access to residents in these countries⁸.

In several developing countries, the discrepancy between mobile phone usage and bank account ownership exists because formal financial institutions are unable to reach poor and rural populations, often due to the high cost of financial intermediation and distance. According to one global study of the unbanked, 20% of respondents report the banks being too far away is the main reason they remain unbanked⁹. Mobile money platforms are emerging to fill this need in countries where the existing financial infrastructure is geographically disparate.

By capitalising on the growth of mobile banking technology, virtual currencies represent the next stage in digitally advancing financial inclusion. Cryptocurrency can eliminate the need for a third-party intermediary to process transactions. Rather, the blockchain system allows users to conduct direct and secure peer-to-peer payments. This can cut both time and costs compared to traditional banking methods or even most mobile banking services which use fiat currency-denominated e-money¹⁰. Proponents of cryptocurrencies believe that the efficiency gains it offers will inspire a wave of innovation in financial services that will follow in the steps of the internet, whose open architecture led to the creation of groundbreaking online services¹¹. As digital currency mobile money platforms improve and become more

² See: <http://documents.worldbank.org/curated/en/187761468179367706/pdf/WPS7255.pdf#page=3>

³ See: <https://qz.com/66061/were-heading-for-a-world-with-more-smartphones-than-bank-accounts/>

⁴ See: <http://www.pewglobal.org/2016/02/22/smartphone-ownership-rates-skyrocket-in-many-emerging-economies-but-digital-divide-remains/>

⁵ See: <https://qz.com/66061/were-heading-for-a-world-with-more-smartphones-than-bank-accounts/>

⁶ See: <http://www.unescap.org/sites/default/files/State%20of%20ICT%20in%20Asia%20and%20the%20Pacific%202016.pdf>

⁷ See: <https://internationalbanker.com/technology/banking-the-unbanked/>

⁸ See: <http://edition.cnn.com/2014/11/06/opinion/banking-the-unbanked-mobile-money/>

⁹ See: https://www.sc.com/en/resources/global-en/pdf/Research/Financial_Inclusion__Reaching_the_unbanked_04_09_14.pdf

¹⁰ IMF (2016), *Virtual Currencies and Beyond: Initial Considerations*.

¹¹ See: <http://www.cgap.org/sites/default/files/Brief-Bitcoin-versus-Electronic-Money-Jan-2014.pdf>

ubiquitous throughout the world, these innovations have the potential to deepen financial inclusion in the long-term.

International money transfers

The existing framework in place for international money transfers is in many ways flawed and “archaic”¹². Limited connections among financial institutions and systems across countries can make transferring money an arduous and inefficient process. International money transfers often take several days to a week to process and involve several actors including country-specific clearinghouses and correspondent banks at either end. Accordingly, international transfer fees can be high. International money transfers can therefore lead to a sizeable loss of both time and money for recipients in developing countries.

Virtual currencies have the potential to offer a much simpler, faster, and cheaper process of money transfer. Virtual currency payments can be made easily using a mobile phone or computer, leading to instantaneous virtual delivery of funds across country borders. By using peer-to-peer networks that operate freely online, virtual currencies such as Bitcoin also allow for international transactions at dramatically lower costs than traditional banking methods. That is, the only fees incurred may be those charged by the currency exchanges. As a result, using virtual currencies for money transfers has several positive implications for development including improving the global remittance process and boosting small-scale international trade.

Global remittances

In many developing countries, remittances sent home by migrant workers living overseas can play a crucial role in the ability of dependent beneficiaries to make ends meet. According to the World Bank, the Asia-Pacific region remains the top destination for global remittance flows. By volume, the world’s top three recipients of recorded remittances are India (\$62.7 billion), China (\$61 billion), and the Philippines (\$30 billion). As a share of gross domestic product (GDP), the greatest recipients are Kyrgyzstan (34.5%) and Nepal (29.7%)¹³.

Despite significant remittance inflows to the Asia-Pacific region, the costs of sending and receiving remittances remain high, with Pacific Island countries ranking amongst the world’s highest cost corridors. For instance, it costs over 20% to send \$200 from Australia to Vanuatu¹⁴. Currently, most senders of international remittances use firms such as Moneygram, Western Union, and RIA, which together manage 1.1 million retail locations and constitute over 25% of the world’s annual remittance volume. Such companies charge anywhere from 6% to 12%, or more, to send \$200 internationally (over a quarter of most

¹² See: <https://www.weforum.org/agenda/2015/01/5-ways-digital-currencies-will-change-the-world/>

¹³ See: <http://pubdocs.worldbank.org/en/992371492706371662/MigrationandDevelopmentBrief27.pdf>

¹⁴ See: <http://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1199807908806/4549025-1450455807487/Factbookpart1.pdf>

Asian migrant workers' earnings)¹⁵. For the majority of Asian migrants who send money home - primarily construction workers, crewmen, and domestic helpers - this amounts to a minimum of \$12 in transfer fees each month, equal to more than half a day's wages¹⁶. Over time, this results in a sizeable loss of income. Moreover, given that 70% of global remittances go towards food, living expenses, healthcare, education, and micro-small businesses in developing countries, the consequences of income loss for remittance recipients are substantial¹⁷.

On the global stage, world leaders have called for a reduction of remittance fees, recognising that, for many, remittances are an economic lifeline that plant the seeds of growth. The Sustainable Development Goals (SDGs), for example, aim to lower remittance fees to 3%¹⁸. Policymakers have already begun to consider digital means to meet this ambitious objective. At a conference hosted by the Asian Development Bank in May 2016, a number of financial technology firms operating in the region presented examples of digital innovations that seek to lower remittance costs *"through a combination of new technology and government-led awareness campaigns"*¹⁹. Indeed, the World Bank estimates that so far, the use of digital channels has reduced the cost of sending money to the Pacific by over 62%²⁰. Digital and virtual currency enabled money transfer apps and websites could further cut down remittance costs and increase the speed of transactions.

To this end, the popularity of virtual currencies for international remittance purposes has risen in recent years. In the Philippines, where remittances constitute 10% of the country's GDP as of 2015, the central bank estimates that the volume of remittances using virtual currencies has increased to at least \$2 million a month^{21,22}. Bitcoin-denominated transactions are thought to account for approximately 20% of all remittances flowing through the Republic of Korea-Philippines corridor each year²³. Given the Asia-Pacific region's historically prohibitive money transfer fees, the widespread use of cell phones, and the emergence of mobile banking apps, policymakers should consider creating regulations that support virtual currency enabled remittances.

Small-scale international trade

In addition to lowering remittance costs, virtual currency can facilitate small-scale international commerce. Virtual currencies provide an alternative financing route for entrepreneurs in less developed countries who are unable to access traditional international payments systems easily. That is, if a business wants to offer credit card payment options to

¹⁵ See: The global average cost of sending remittances is around 8%. On average, remittances to East Asia cost 9%, and 6% to South Asia. (<http://development.asia/explainer/cutting-remittance-costs-click>)

¹⁶ See: <https://qz.com/775159/theres-a-500-billion-remittance-market-and-bitcoin-startups-want-in-on-it/>

¹⁷ See: <http://www.fintechasia.net/tag/remittance/>

¹⁸ See <https://sustainabledevelopment.un.org/sdg10>

¹⁹ See: <http://development.asia/explainer/cutting-remittance-costs-click?section=4>

²⁰ See: <http://development.asia/explainer/cutting-remittance-costs-click?section=4>

²¹ See: <https://www.bloomberg.com/professional/blog/philippines-mulling-bitcoin-regulation-remittance-use-surges/>

²² See: <http://www.fintechasia.net/tag/remittance/>

²³ See: <https://qz.com/775159/theres-a-500-billion-remittance-market-and-bitcoin-startups-want-in-on-it/>

customers, it must first pay for merchant accounts. The business would need to pay each credit card company some combination of statement fees, transaction fees, authorisation fees, interchange fees, and customer-service fees, among others. Furthermore, merchants deemed “high risk” by credit card companies face additional barriers in finding a payment processor. Ultimately, these fees increase the cost of doing business considerably²⁴.

By contrast, virtual currency merchant-service providers, such as BitPay, provide inexpensive and easy-to-use alternatives to credit card services²⁵. These virtual currency services allow the seller to avoid the high costs associated with setting up merchant accounts with formal banks. For example, a business with a Bitcoin (or other virtual currency equivalent) address can directly sell its goods and receive Bitcoins in return. The merchant can then convert Bitcoins to local fiat currency on a Bitcoin exchange²⁶. A number of virtual currency enabled mobile apps and websites geared towards start-ups even allow users to skip this last step. Incoming foreign currency from abroad is automatically changed into a designated virtual currency, and then to local currency in a matter of minutes or seconds, which limits the risk of fluctuating currency values²⁷. The near-instantaneous and efficient nature of the digital ledger technology behind these virtual business transactions could greatly facilitate small-scale business, incentivise entrepreneurship, and extend the reach of emerging start-ups to customers around the world.

VIRTUAL CURRENCY CONCERNS AND REGULATORY IMPLICATIONS

Price volatility

One main deterrent to the proliferation of virtual currencies is price volatility. The decentralised nature of many virtual currencies means they lack a stability mechanism to curb price fluctuations; theoretically, you could go from holding \$100 to \$50 worth of Bitcoins overnight. Therefore, holding virtual currencies for an indeterminate period of time, for instance, for the purposes of portfolio diversification, could be unwise. However, when using virtual currencies as an instantaneous form of payment, such as sending remittances, users can buy and spend virtual currency within minutes, which greatly reduces the risk of price volatility.

Moving forward, policymakers could work to create a favorable environment for virtual currency entrepreneurs to flourish. To make virtual currency a more viable and practical form of both payment and investment in the long-term, standards on periods of exposure to currency risk could be put in place²⁸. Governments could also promote innovation and

²⁴ See: https://www.mercatus.org/system/files/Brito_BitcoinPrimer_v1.3.pdf

²⁵ See: https://www.mercatus.org/system/files/Brito_BitcoinPrimer_v1.3.pdf

²⁶ See: [http://www.unrisd.org/80256B3C005BCCF9/\(httpAuxPages\)/196AEF663B617144C1257F550057887C/\\$file/Brett%20Scott.pdf](http://www.unrisd.org/80256B3C005BCCF9/(httpAuxPages)/196AEF663B617144C1257F550057887C/$file/Brett%20Scott.pdf)

²⁷ See: <http://www.cgap.org/blog/digital-currencies-and-financial-inclusion-revisited>

²⁸ See: <http://www.cgap.org/blog/digital-currencies-and-financial-inclusion-5-questions>

competition in technologies offering financial services and alternative payment systems by supporting the research, development, and application of emerging virtual currency technologies. Eventually, the value of virtual currency tokens should stabilise as more people begin to use them, since the greater the user base, the less effect each person has on impacting the price²⁹.

Potential for illegal activity

As virtual currency communities have grown and matured, so too have their networks' security measures³⁰. However, a number of threats remain. The most pressing dangers are the vulnerability of virtual currency platforms to hacking and other security breaches, as well as the anonymity they afford users, which can be channeled for nefarious purposes. Without proper regulation, online black markets on the Deep Web, such as Silk Road, can proliferate.

The regulatory environment of virtual currencies in Asia and the Pacific, as in the rest of the world, is diverse, ranging from endorsement to simple acceptance or outright rejection. The Government of China, concerned about the use of Bitcoin in capital flight and tax evasion, has restricted Bitcoin exchanges. Private persons can hold Bitcoins but financial companies cannot^{31,32}. Regulators are introducing regulations on cryptocurrency companies in the Republic of Korea. Initial coin offerings, a fundraising method where investors are provided with cryptocurrency tokens, have been banned both in China and in the Republic of Korea, as these are considered to be highly speculative³³. Japan, on the other hand, has officially recognised Bitcoin as a legal method of payment, in an apparent bid to become the global centre of FinTech^{34,35}. There are no regulations with respect to its transaction or possession in Thailand, India, Indonesia, Viet Nam, Philippines or Singapore³⁶.

As virtual currencies become more commonplace, the need for regulation becomes more pressing. Policymakers should consider evaluating and improving the current ability of their law enforcement bodies to identify and deal effectively with non-legitimate use of virtual currency within and across borders. Policymakers could ensure government agencies are equipped with the necessary tools, skills, and legislation to recognise and prosecute illegal use of virtual currencies. The regulatory, legal, and tax regimes will vary depending on how virtual currencies are classified (i.e. as a currency or as an asset)³⁷. Policymakers could also implement anti-money laundering regulations targeting virtual currency exchanges in their

²⁹ See: [http://www.unrisd.org/80256B3C005BCCF9/\(httpAuxPages\)/196AEF663B617144C1257F550057887C/\\$file/Brett%20Scott.pdf](http://www.unrisd.org/80256B3C005BCCF9/(httpAuxPages)/196AEF663B617144C1257F550057887C/$file/Brett%20Scott.pdf)

³⁰ See: [http://www.unrisd.org/80256B3C005BCCF9/\(httpAuxPages\)/196AEF663B617144C1257F550057887C/\\$file/Brett%20Scott.pdf](http://www.unrisd.org/80256B3C005BCCF9/(httpAuxPages)/196AEF663B617144C1257F550057887C/$file/Brett%20Scott.pdf)

³¹ See: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3042248

³² See: https://www.fnlonon.com/articles/bitcoin-may-collapse-and-thrive-20171012?link=TD_mansionglobal_articles.a2aa4e199540b4fe&utm_source=mansionglobal_articles.a2aa4e199540b4fe&utm_campaign=circular&utm_medium=FINNEWS

³³ See: <https://www.coindesk.com/south-korean-regulator-issues-ico-ban/>

³⁴ See: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3042248

³⁵ See https://www.fnlonon.com/articles/bitcoin-may-collapse-and-thrive-20171012?link=TD_mansionglobal_articles.a2aa4e199540b4fe&utm_source=mansionglobal_articles.a2aa4e199540b4fe&utm_campaign=circular&utm_medium=FINNEWS

³⁶ See: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3042248

³⁷ See: [http://www.unrisd.org/80256B3C005BCCF9/\(httpAuxPages\)/196AEF663B617144C1257F550057887C/\\$file/Brett%20Scott.pdf](http://www.unrisd.org/80256B3C005BCCF9/(httpAuxPages)/196AEF663B617144C1257F550057887C/$file/Brett%20Scott.pdf)

countries, and work with the digital currency industry to create voluntary consumer protection standards³⁸³⁹. Finally, to address the regulatory challenges surrounding virtual currency use, governments could collaborate with global entities such as the Financial Action Task Force (FATF), as well as with other countries.

CENTRAL BANK DIGITAL CURRENCIES

Recently, central banks around the world have begun to explore the possibility of introducing central bank digital currencies (CBDCs). In 2015, Ecuador launched the world's first e-currency that is tied directly to the local currency⁴⁰. In 2016, Tunisia unveiled the "e-Dinar", becoming the first nation to put its currency on the blockchain⁴¹. Several countries are looking to follow as they consider the multifaceted merits of distributed ledger technology. In particular, the People's Bank of China (PBOC) has been a global leader in developing its own national cryptocurrency. Since it began research in 2014, the PBOC has completed a series of digital currency trials, and its senior officials have come out strongly in favor of CBDCs. Other central banks making forays into CBDC research include the Monetary Authority of Singapore, Bank of Canada, Deutsche Bundesbank, Bank of England, and Central Bank of Russia⁴²⁴³. International collaboration has also been a feature of this movement towards CBDC development. Last December, the European Central Bank announced a partnership with the Bank of Japan to explore the potential of distributed ledger technology and the viability of central bank digital currency⁴⁴.

In addition to the sustainable development applications CBDCs would have in common with virtual currencies (detailed in previous sections of this paper), CBDCs also have the unique potential to do the following:

Alleviating costs and dangers of cash circulation

For developing nations where a significant number of transactions take place in cash, the burden of printing and dispensing money is particularly restrictive. In India, for instance, prior to the demonetization of 500 and 1,000 rupee notes, currency operation costs for the Reserve Bank of India and commercial banks totaled about \$3.5 billion a year⁴⁵. A semi or completely digitised currency would substantially reduce the costs associated with producing and maintaining physical fiat money.

A central bank digital currency can also be used to increase transparency. Distributed ledger technology, capable of tracking any kind of asset or payment, could be applied to fight

³⁸ See: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/414040/digital_currencies_response_to_call_for_information_final_changes.pdf

³⁹ See: Regulating virtual currency exchanges could also have the added benefit of stabilizing volatile virtual currency values to a certain extent.

⁴⁰ See: <http://www.cNBC.com/2015/02/06/ecuador-becomes-the-first-country-to-roll-out-its-own-digital-durrency.html>

⁴¹ See: <https://futurism.com/tunisia-puts-nations-currency-blockchain/>

⁴² See: <https://www.bloomberg.com/news/articles/2017-02-23/pboc-is-going-digital-as-mobile-payments-boom-transforms-economy>

⁴³ See: <https://rctom.hbs.org/submission/should-central-banks-issue-digital-currencies/>

⁴⁴ See: <https://www.ecb.europa.eu/press/key/date/2016/html/sp161206.en.html>

⁴⁵ See: <http://timesofindia.indiatimes.com/business/india-business/Indias-love-for-cash-costs-3-5bn-a-year/articleshow/45934597.cms>

corruption in areas where cash economies facilitate “under-the-table” transactions. More generally, regulation of a national digital currency would increase scrutiny on potentially illicit uses of money such as financing terrorism.

Improving response mechanisms to financial crisis

A country using a CBDC based in the blockchain would be better prepared for a financial crisis. Being secure and public, a digital ledger would provide real-time visibility into how credit is being created, the assets in circulation and their location, and how far they’ve been lent out⁴⁶. This transparency, as well as gains in transaction speed, would allow central banks to deploy more complex financial instruments in less time, and react to shocks more quickly. In addition, the immediacy of available data through the distributed ledger would allow for the calculation of precise monetary indicators (i.e. money supply growth), which in turn would enable central banks to enact monetary policy more efficiently in general.

Applications based on distributed ledger technologies

The distributed ledger technologies (DLTs) supporting cryptocurrencies (such as the blockchain supporting Bitcoins) represent, in many aspects, more opportunities for inclusive development. Proponents of DLTs suggest that these technologies democratise wealth creation⁴⁷ as they provide opportunities for decentralised management of value and offer an alternative to potentially inefficient or unfair centralised systems. For instance, DLTs can lay the groundwork for the creation of portable and secure digital national identification on mobile phones; this can be particularly impactful in countries where significant segments of the population still lack a recognised form of identification⁴⁸. DLTs could also lead to innovations in healthcare information-sharing, microfinance structures, delivery of public services, and more. DLTs also provide opportunities for the creation of decentralised platforms owned by those providing the services (e.g. house owners seeking to rent their house, artists seeking to sell their music, photography or art) rather than central service aggregators⁴⁹.

However, before any of these developments can take place, countries would first need to reach a reasonable level of digital readiness and inclusivity in order to introduce a national digital currency or apply distributed ledger technology successfully.

The potential of virtual currencies to provide for cheaper access to remittances or to increase opportunities for small-scale international trade will also depend on the availability of liquid markets that can exchange virtual currencies for fiat currency. While a number of exchange

⁴⁶ See: <https://www.forbes.com/sites/laurashin/2016/10/12/central-banks-explore-blockchains-why-digital-dollars-pounds-or-yuan-could-be-a-reality-in-5-years/#56435c31645f>

⁴⁷ See: https://www.ted.com/talks/don_tapscott_how_the_blockchain_is_changing_money_and_business

⁴⁸ See: <https://techcrunch.com/2016/03/26/virtual-currencies-and-distributed-ledgers/>

⁴⁹ See: https://www.ted.com/talks/don_tapscott_how_the_blockchain_is_changing_money_and_business

markets exist in developing countries for virtual currencies, most developing countries often lack the availability of liquid markets.

CONCLUSION

Digital currencies bring about digitally-driven opportunities for financial inclusion and global commerce. The spread of mobile phones and e-money has provided well-known opportunities for financial inclusion in developing countries. The emergence of cryptocurrencies and compatible virtual currency enabled apps and websites also has the potential to offer a cheaper and more efficient method of payment throughout Asia and the Pacific, and benefit entrepreneurs in developing countries engaging in e-commerce, as well as remittance senders and receivers. However, given its characteristics, virtual currencies are less likely to provide other financial services such investments, credit, insurance.

To be able to benefit from digital currencies, countries should strengthen the infrastructure necessary to increase mobile broadband penetration, as well as encourage innovation in the digital currency industries. Additionally, to reach the full sustainable development potential of virtual currencies, policymakers should take care to restrict illegal use of virtual currency while at the same time not stifle innovation.

As digital currency technologies continue to mature, there are opportunities to introduce central bank digital currencies (CBDCs). CBDCs could allow countries to capitalise on the sustainable development applications of virtual currency, while solving the price volatility and security issues that decentralised cryptocurrencies present today.

Beyond this, the distributed ledger technology that sustains cryptocurrencies can encourage service innovations that deepen financial inclusion and spur economic growth.

Digital currencies may still be in the early stages of growth, but their potential to accelerate sustainable development in the Asia-Pacific region makes it a policy agenda that deserves further exploration, research and policy debate.