



## Digital currencies: Technological innovations in finance

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### Abstract

As technology evolves, the way people live, work, and spend has changed; and central banks globally have tried to reinvent their local currencies for the digital era (Thorbecke, 2022) <sup>[7]</sup>. China, the world's second-largest economy by GDP, soft-launched her digital Renminbi in January 2022. In February 2022, the IMF Managing Director indicated that about 100 countries are exploring digital currency. Some digital currencies are government-backed and traded via tech infrastructure. There is usually no intermediary among traders or investors; therefore, transaction costs are usually efficient.

**Keywords:** Digital currency, digital money, electronic money, electronic currency

### Introduction

Digital currency is any currency, money, or money-like asset that is primarily managed, stored, or exchanged on digital computer systems, especially over the Internet (Frankenfield, 2022) <sup>[2]</sup>. Digital currency is a type of currency that is available only in electronic form, but not in physical form. It is also called digital money, electronic money, electronic currency, or cyber cash. Digital currencies are intangible and can only be owned and transacted by using electronic wallets. Digital currencies can be used to purchase goods/services and make payments. They have all intrinsic properties like physical currency, and enable instantaneous seamlessly executed transactions, provided users are connected to the required networks. There is no intermediary required; therefore, transaction costs are usually low. Also there is transparency in dealings. Digital currency is a payment system that is not based on physical currency, but rather an alternative non-tangible currency. It has the potential to change completely how society thinks about money. It is available exclusively in electronic form. Digital currency is a form of advancement in technology that will likely change the way we accept bill and pay for things (Johnson, n.d.). With digital currency, the sender cannot cancel after the transaction is completed. However, with a Paypal money transfer, the sender has 60days to cancel.

Digital transformation (DT) is a concept and a successful business strategy that has made a positive impact on business operations in the finance industry (Afghan, 2019). It is a competitive and cost-effective strategy that has improved employee and customer experience in business operations. The four types of digital currency are (1) currency possessing intrinsic utility, (2) tokens, (3) centralized digital currency, and (4) decentralized digital currency. The year 2018 witnessed an evolution of digital transformation trends in financial services.

A currency possessing intrinsic utility is the currency that does not depend on governance but possesses actual intrinsic value. Examples of this currency are: gold, silver, bronze, and prepaid phone cards. A token is cryptocurrency that possesses less intrinsic value, primarily because its use is highly specialized. Bitcoin is a crypto token. Centralized digital currency is Central Bank Digital Currency (CBDC);

the digital form of a nation's physical currency. Central Bank digital currency (CBDC) is a digital liability of a central bank available to the public. Decentralized digital currency is that digital currency outside the control of the government and the central bank.

### Digital currency

Digital currency is a form of advancement in technology that will likely change the way we accept bills and pay for things (Johnson, n. d). Bitcoin is the most famous name in digital currency, but Ethereum is also gaining popularity; others like Litecoin, Zcash, Dash, and Ripple are quickly gaining attention and legitimacy. The rise of bitcoin has led global central banks to research how national digital currencies might work. Blockchain is the technology that powers digital currencies. Blockchain supports decentralized digital currency through a peer-to-peer validation process. Blockchain is also considered a solution for better online data management and transactions.

There are four types of digital currency: (1) currency possessing intrinsic utility, (2) tokens, (3) centralized digital currency, and (4) decentralized digital currency. Cryptocurrency, stablecoins, and central bank digital currency (CBDCs) are the three main varieties of digital currency. Blockchain technology provides the foundation for cryptocurrency and is the most common form of distributed ledger used by digital currencies (corporate finance institute. com, n. d.).

Digital currencies do not have physical attributes and are available only in digital form. Transactions involving digital currencies are made using computers or electronic wallets connected to the Internet. Digital currencies have brought a new wave of doing businesses and rendering services as well as new payment options to serve the flourishing market. Electronic currency predominate most countries' financial systems.

CryptoPay is created as a "contactless debit card" to allow users to make payments from their Bitcoin accounts and merchants to receive payments. CryptoPay goes public by offering digital tokens in limited supply to investors or buyers who would like to invest in a company. This process is called ICO (initial coin offering) rather than IPO (initial public offering). As more businesses and brands

begin to accept Bitcoin, Ethereum, and other cryptocurrencies, more people will begin to accept and use them. Technology will continue to play a huge role in how businesses accept digital currencies online.

### Fin tech

is the use of modern technology adopted by banks and financial companies to improve delivery of financial services. Fin Tech includes ATMs, credit cards, and blockchain. Paypal and Applepay are examples of digital transformation in financial services that disrupt existing payment markets.

### Bitcoin

Bitcoin is a digital, decentralized, partially anonymous currency, not backed by the government or any legal entity (Grinberg, 2011) <sup>[3]</sup>. It is not redeemable for gold or other commodity; and relies on cryptography to maintain its integrity. It is used to make micropayments and its transaction cost is low. An example of digital currency is US digital currency (USDC), which is online 24/7 and on most advanced blockchains. It is faster and safer than physical currency. It is easy to send and use for payment of goods and services. It is always redeemable 1:1 for U.S. dollars.

### Central bank digital currency

Digital currency is a payment system that is not based on physical currency, but rather an alternative non-tangible currency. Central Bank Digital Currency (CBDC) is generally defined as a digital liability of a central bank that is widely available to the general public. Central Bank Digital Currency (CBDC) is the digital form of a country's physical currency (Corporatefinanceinstitute.com, n.d.). Today in the United States, Federal Reserve notes (i.e., physical currency) are the only type of central bank money available to the general public. Studies have been conducted to identify the potential benefits of CBDC; the focus now is whether CBDC could improve the safety and efficiency of the US payment system.

Most nations' central banks have not decided on digital currency yet while some including the G20s are exploring it. Central Bank digital currencies (CBDCs) are not volatile like Bitcoin because they are pegged to a country's physical currency. Federal Reserve indicated that its CBDC will be the safest with no credit or liquidity risk. If there is a disaster that makes cash unavailable like it happened in Nigeria recently, CBDC could be used as a back-up. Because cash is untraceable, it is easy to commit crime. Central bank digital currencies on the other hand, can improve the transparency of money flows (Masterson, 2022) <sup>[5]</sup>.

Some of the challenges faced by the CBDC are: potential cybersecurity threats, counterfeiting risk, theft, network failure, etc. There is need to ensure that the CBDCs are available enough to improve a country's financial system. European Central Bank (ECB) expects to introduce a digital euro across its 27 member states by mid-decade. It is still too early to predict the future of CBDCs. For the CBDC to work well, a way to handle transactions offline would need to be developed so that investors could exchange the currency with ease even when they are not online. The Federal Reserve Board has issued a discussion paper that examined the pros and cons of a potential U.S. CBDC and sought public feedback.

## Advantages and disadvantages of digital currency transactions (DCT)

### Advantages

1. DCT enables companies to effectively and efficiently respond to crisis and develop ways to improve and support innovation
2. It enables team members to work collaboratively and communicate effectively.
3. It enables companies to improve their compliance management.
4. Artificial intelligence (AI) makes online banking cheaper, easier, and safer for customers.
5. It enables companies to keep in line with regulatory and compliance changes.
6. It is regarded as one of the most impressive innovations in financial services and logistic technologies that may transform the world.
7. It enables seamless transfer of value and can make transaction costs cheaper.
8. It enables instant transactions that can be seamlessly executed across borders.
9. It enables cheaper and faster transaction
10. It enables easy access 24/7  
Using digital currency enables faster payments of goods and services.

### Disadvantages

1. It will take time to determine which digital currencies may be appropriate for certain cases
2. The system needs to get simpler for digital currencies to be more widely adopted. The users will need to learn how to perform fundamental tasks, e.g. how to open a digital wallet
3. Transactions may be expensive as there is need to have access to a PC or a smart phone and an Internet connection to do any digital transaction.
4. Cryptocurrency prices and values can change suddenly i.e. its price is volatile.
5. Progress and development of digital currency is slow.
6. There are also tech barriers and security concerns as well as privacy threats.
7. If CBNs are given the power to control digital currency transactions, there may be a high risk of political abuse.
8. There may be price volatility; although, CBDC is backed by the central bank of that country so value stability may be expected.
9. As of now, a citizen of one country may not have access to digital currency (DC) of another country. This may change as more countries implement DC worldwide.
10. Because digital transactions are traceable, they are therefore, taxable.
11. Technological stability may not be practicable due to technical issues.

### Differences between digital currency and electronic currency

Digital currency is different from the electronic currency; this is because digital currency never takes a physical form. Digital currency is a type of virtual currency that exists in cyberspace. Other differences are: a). electronic money is stored electronically while digital currency is stored digitally, b). electronic money can be transferred instantly while digital currency takes longer to transfer, c). electronic

money has been regulated by governments while digital currency is not, d). electronic money is stored in a bank account and can be used for payment electronically while digital currency exists as a code and cannot be converted into cash.

#### **Similarities of digital currency and electronic currency**

1. they are both forms of money
2. they are both used for making payments online.
3. they both have no transaction fees
4. they both have no government regulation
5. they are both available worldwide.

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